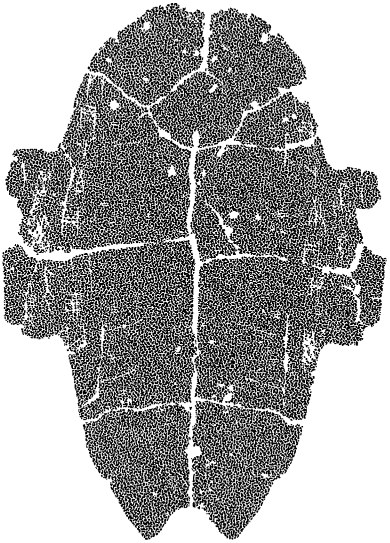

SOURCES
The Oracle-Bone

University of

OF SHANG HISTORY

Inscriptions of Bronze Age China

DAVID N. KEIGHTLEY

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Preface to the Second Printing

I am grateful to the University of California Press for making this paperback edition, with the more egregious typographical errors corrected, available to a wider public. Although it is not feasible to incorporate or even summarize the many developments in oracle-bone scholarship that have occurred since this book was first published, attention should be called to certain new books and articles which bear directly on the oracle-bone inscriptions considered as historical sources.

Yen Yi-p'ing 嚴一萍, *Chia-ku-hsüeh* 甲骨學, 2 vols. (Taipei: 1978) provides a valuable survey of many of the topics addressed in this volume. A large number of articles dealing with the oracle-bone inscriptions have appeared in the new publication, *Ku-wen-tzu yen-chiu* 古文字研究 (Peking: Chung-hua shu-chü), ten volumes of which have appeared since 1979. For the general study of the Shang dynasty, we are now fortunate to have Kwang-chih Chang, *Shang Civilization* (New Haven: 1980).

Turning to more specialized matters, with regard to the mood of the charges (p. 29, n. 3, below), Li Hsüeh-ch'in 李學勤, "Kuan-yü Tui-tsu pu-tz'u ti yi-hsieh wen-t'i 関于自组卜辞的一些问题," *Ku-wen-tzu yen-chiu* 3 (1980): 39–42, argues that interrogative auxiliaries, including *pu* 不 and *hu* 乎, were placed at the end of certain period Ib (to employ the terminology of this book) charges; this suggests the possibility, if one believes that the Ib inscriptions represent an older, more conservative tradition, that charges had originally been conceived and recorded as questions but that they came to be treated as statements by the "court diviners" of period I (p. 25, below). For my revised understanding of crack notations (sec. 2.1), readers should consult Keightley, "Reports from the Shang: A Correction and Some Speculations," *Early China* 9 (in press). On grammar (sec. 3.5.1), one may now consult Paul L-M. Serruys, "Towards a Grammar of the Language of the Shang Bone Inscriptions," *Chung-yang yen-chiu-yuan kuo-chi Han-hsüeh hui-yi lun-wen chi* 中央研究院國際漢學會議論文集 (Taipei: 1981), pp. 313–364. I now believe, following another insight of Li Hsüeh-ch'in ("Lun Yin-hsü pu-tz'u ti 'hsing' 论殷墟卜辞的'星'," *Cheng-chou ta-hsüeh hsüeh-pao* 郑州大学学报 4 [1981]: 89–90) that *Ping-pien* 207.3 (translated at p. 88, below) contains no reference to the Bird Star(s); the last four words of the verification probably mean: "When we offered *shih* and *mao* sacrifice it suddenly cleared." Edward L. Shaughnessy ("Recent Approaches to Oracle-Bone Periodization: A Review," *Early China* 8 [1982–83]: 1–13) demonstrates the ways in which recent Chinese scholarship permits us to refine Tung Tso-pin's system of periodization (sec. 4.2, below) by employing diviner groups rather than reigns; he also summarizes the reasons that appear to confirm an early date for the disputed RFG inscriptions (p. 32, n. 18, below).

Finally, attention must be called to two new major primary sources, the first edited by the Institute of Archaeology, the second by the Institute of History: (1) *Hsiao-t'un nan-ti chia-ku* 小屯南地甲骨, 2 vols. (n. p.: Chung-hua shu-chü, 1980), which contains rubbings of (a) 4,589 oracle bones excavated in 1973 (cf. p. 133, n. 188, below) and (b) 23 pieces excavated in 1971 (p. 165, n. 2, below) and 1975–77. (2) *Chia-ku-wen ho-chi* 甲骨文合集, 13 vols. (n. p., Chung-hua shu-chü: 1982), in which the majority of the 41,956 inscriptions have been reprinted from previously published collections, but a certain percentage are previously unpublished; the inscriptions have been arranged chronologically and topically and have been numbered sequentially, but the compendium, which is intended as a standard reference source, will only become fully useful when the promised index volume, which will provide cross-references between *Ho-chi* and the original publication data of each inscription—telling us, for example that *Ho-chi* 22782 and *Hsü-ts'un* 1.1475 refer to the same inscribed bone—is published. Commentaries are said to be in preparation for both of these collections.

10 December 1984

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36 Number of oracle bones recovered compared with number reported in marginal notations
37 Chronologies proposed for the P'an Keng-Ti Hsin era
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List of Abbreviations*

AYFC	Kuo-li chung-yang yen-chiu-yüan li-shih yü-yen yen-chiu-so chuan-k'an 國立中央研究院歷史語言研究所專刊 1. *An-yang fa-chüeh pao-kao* 安陽發掘報告. Peiping.
BIE	*Chung-yang yen-chiu-yüan min-tsu-hsüeh yen-chiu-so chi-k'an* 中央研究院民族學研究所集刊 [Bulletin of the Institute of Ethnology, Academia Sinica].
BIHP	*Chung-yang yen-chiu-yüan li-shih yü-yen yen-chiu-so chi-k'an* 中央研究院歷史語言研究所集刊 [Bulletin of the Institute of History and Philology, Academia Sinica].
CKWP	Chung-kuo k'e-hsüeh-yüan k'ao-ku yen-chiu-so 中國科學院考古研究所. *Chia-ku wen-pien* 甲骨文編. K'ao-ku-hsüeh chuan-k'an yi-chung ti-shih-ssu hao 考古學專刊乙種第十四號. Peking, 1965.
CKWT	Li Hsiao-ting 李孝定. *Chia-ku wen-tzu chi-shih* 甲骨文字集釋. Chung-yang yen-chiu-yüan li-shih yü-yen yen-chiu-so chuan-k'an chih wu-shih 中央研究院歷史語言研究所專刊之五十. 8 vols. Nankang, 1965.
CLCY	Sun Yi-jang 孫詒讓. *Chou-li cheng-yi* 周禮正義. 1905. Ssu-pu pei-yao 四部備要 reprint. Taipei, 1966.
Cr	*Chinemys reevesi.*
CWP	Jung Keng 容庚. *Chin-wen-pien* 金文編. Peking, 1959.
D	Drawing.
GSR	Bernhard Karlgren. *Grammata Serica Recensa.* Stockholm, 1957.
H	Hollow.
KK	*K'ao-ku* 考古.
KKHP	*K'ao-ku hsüeh-pao* 考古學報.
Mm.	*Mauremys mutica.*
Os	*Ocadia sinensis.*
PL	Plastron length.
RBS	*Revue bibliographique de sinologie.*
RFG	Royal Family group.
S	Shima Kunio 島邦男. *Inkyo bokuji sōrui* 殷墟卜辭綜類. 2d rev. ed. Tokyo, 1971.
SKK	Takigawa Kametarō 瀧川龜太郎. *Shiki kaichū kōshō* 史記會注考證. 10 vols. Tokyo, 1934.
Studies	David N. Keightley. *Studies in Shang Divination* (see Preface).
TLK	Ta-lien-k'eng 大連坑.
TLTC	*Ta-lu tsa-chih* 大陸雜誌.
WW	*Wen-wu* 文物.

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*For the abbreviated titles by which oracle-bone collections are cited, see Bibliography A.

Preface

It is the first responsibility of historians—though not their last—to assess their sources and to make their critical methods and conclusions about those sources available to other scholars. In the case of Shang China, historians must strive to discern a series of consistent patterns in divination inscriptions which were carved on some one hundred thousand scapula and plastron fragments over three thousand years ago. The historiographical problems are the standard ones involving questions of restoration, dating, decipherment, chronological pattern, authenticity, and motivation. Technical decisions about such matters can significantly alter our understanding of Shang reality, for the line between a study of historical sources and the writing of history using those sources is exceedingly fine, especially in the field of ancient history where the comparative paucity of documents gives great significance to each one. We can never fully understand Shang history or any other as it really was, but we must, as a first step in our study of the Shang, understand the documents as they really are. It is the purpose of this book to introduce the student to oracle inscriptions, to define their nature, to show how they may be deciphered, and to suggest how they may be used as historical sources.

Sources of Shang History is focused on what I call the historical period, the era of the eight or nine kings from Wu Ting to Ti Hsin (ca. 1200–1050 B.C., in my view) for which we have contemporary Shang inscriptions.[1] The historical period coincides, in part, with what some archaeologists and art historians refer to as the Late Shang or An-yang phase.[2] Others call this phase the Yin phase, distinguished from an earlier Shang phase that refers to what are thought to be dynastic sites prior to P'an Keng's removal of the capital to Yin.[3] In this connection, several points need to be made: (1) There are no contemporary records of the capital removal, for no oracle-bone inscriptions have yet been found that may be dated firmly to the reign of P'an Keng;[4] (2) since references to the removal appear in no text whose compilation may be firmly dated prior to the Eastern Chou (starting in 770 B.C.), the event itself may be legendary;[5] (3) even if P'an Keng moved his capital to a place called Yin, we are not sure where Yin was located;[6] (4) the oracle inscriptions make no reference to any great settlement (*ta-yi* 大邑) called Yin, though they do refer to the *ta-yi Shang*, a fact which undercuts the traditional view that the dynasty was known as Shang prior to P'an Keng's removal and as Yin after it.[7] Given these uncertainties, I refer to the period from Wu Ting (*not* P'an Keng) to Ti Hsin as the historical period. When I refer to the Shang state I mean the polity ruled by the kings of the historical period whose capital, or cult center, is represented by the foundations, tombs, and other remains at An-yang that are contemporary with the oracle inscriptions excavated there. It may also be remarked that we are not absolutely certain that the Shang called themselves Shang, rather than Yin; thus uncertainty extends even to the title of this book. I use the term *Shang* because it seems probable that the *ta-yi Shang* did refer to the capital and thus to the dynasty.[8]

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[1] On the question of whether or not Lin Hsin reigned, see table 1, note h. On the Shang dates, see appendix 4.

[2] On these terms, see Soper (1966) and, for the problems involved, Kane (1973), pp. 356–358.

[3] E.g., Chang Kwang-chih (1968), p. 234; cf. *KK* (1975.1), pp. 31–32.

[4] See ch. 4, n. 24.

[5] The removal forms the occasion for the "P'an Keng" chapter of *Shang-shu*; on its probable date of composition, see Creel (1938), pp. 63–69; Ch'en Meng-chia (1956), p. 251; Matsumoto Masaaki (1966), pp. 420–433; Wheatley (1971), pp. 13–14, 420; cf. Ho (1975), p. 307, however, who finds that much of its content is authentic, i.e., Shang.

Sources is not a book to be enjoyed at one sitting, but a book to be used and reused by those who are working with, or want to work with, the oracle-bone inscriptions. As an initial study, it has few discrete edges, but unravels in numerous footnotes that suggest the need for further research. I frequently find occasion to cite unpublished doctoral dissertations, conference papers, or research in progress. I do this both to give credit to the numerous scholars whose endeavors have aided my own and to indicate the kinds of problems on which scholars are currently working. My own research in progress deals with such topics as the status of the diviners, the theology of Shang divination, how the cracks were read, the reason why the oracle bones were carved and stored, the controversy over the Old and New Schools, and the absolute date of the dynasty. I refer to these future publications by the general title *Studies in Shang Divination* (abbreviated *Studies*).

It may be helpful to introduce the various conventions of citation and transcription used in this book. With the exception of the references to Shima's *Inkyo bokuji sōrui* (abbreviated as S) which omit the p., all page references are preceded by p. or pp. Numbers not preceded by these letters refer to a rubbing number, drawing number, entry number, and so on; thus, Yen Yi-p'ing (1961), pp. 207–215 is not the same as Yen Yi-p'ing (1961), 207–217. The method by which oracle-bone inscriptions are cited is explained in ch. 3, n. 5. The numbers used to identify oracle-bone inscriptions are italicized when the relative date of the inscription is germane to the discussion and can be assigned with some certainty (see ch. 4, n. 1). The letter D indicates that the citation is to a drawing of an oracle inscription rather than to a rubbing or photograph.[9] The symbols used to indicate missing and restored characters are described in sec. 5.6. Archaic pronunciations, generally Karlgren's, are preceded by an asterisk (see ch. 3, n. 46).

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[6] See ch. 2, n. 2. Accepting the *Ku-pen chu-shu chi-nien* statement that this was the last Shang capital removal (Fan [1962], p. 21), and assuming that the An-yang site (focused on what is thought to have been the temple-palace complex at Hsiao-t'un) was the Shang capital in the historical period, modern scholars have generally assumed that P'an Keng removed the capital there (e.g., Creel [1938], pp. 135–139 and Ch'en Meng-chia [1956], p. 252; Tung [1945], pt. 2, ch. 5, p. 23a, disagreed). But there are possible difficulties with this view; to cite but two of them: Ssu-ma Ch'ien states that P'an Keng moved south of the Yellow River (*SKK*, ch. 3, p. 20; Chavannes [1895], p. 194), yet An-yang is to its north and, so far as we know, always has been; further, the claim that there were no more capital removals after P'an Keng is contradicted by other traditions (cited by Ch'en Meng-chia [1956], p. 252; cf. Chou Hung-hsiang [1958], p. 22, and the summary by Lefeuvre [1975], p. 64, n. 1).

[7] This theory appears first in *Ti-wang shih-chi* 帝王世紀, a work of the third century A.D., as quoted in *T'ai-p'ing yü-lan*, ch. 83, p. 8b: "The Emperor P'an Keng removed the capital to Yin; for the first time one changed Shang and said Yin." For oracle inscriptions about the *ta-yi Shang*, see S279.2–3.

[8] This view is supported by the inscription on the Ho-tsun 何尊, excavated in 1963, and datable to the fifth year of Ch'eng Wang of Chou, which contains the retrospective phrase, *wei Wu Wang chi k'e ta-yi Shang* 隹珷王既克大邑商, "it was when Wu Wang had conquered the great settlement Shang" (T'ang Lan [1976], p. 60). For a general introduction to the problem, see Barnard (1960b), pp. 499–500, who notes that "Yin" is never applied to the dynasty in scientifically excavated bronzes, and Ch'ü Wan-li (1965a), pp. 88–89, who provides a useful tabulation of references to Yin and Shang in Chou texts. Ke Yi-ch'ing (1939) is interesting on the origins of the name Shang itself.

The footnotes, like the dedication page, reveal the extent of my debt to the large number of scholars, primarily Chinese and Japanese, who have devoted themselves to oracle-bone studies. My debt to contemporaries who have given me the benefit of their criticisms and generously shared their knowledge is equally large. In particular, I should like to thank Noel Barnard, Chang Kwang-chih, Chou Hung-hsiang, Hsü Chin-hsiung, J. A. Lefeuvre, Gilbert Mattos, Stanley Mickel, Henry Rosemont, Jr., and Takashima Kenichi. I am happy to acknowledge my special debt to David S. Nivison. We have tried "cracking" many inscriptions together; his sensitive and original readings have taught me much. None of these scholars is responsible for the opinions and conclusions given in the book. I should like to thank Jack Jacoby of Columbia University's East Asiatic Library, Barbara Stephen and Hsü Chin-hsiung of the Royal Ontario Museum, Vadime Elisséeff of the Musée Cernuschi, Michèle Pirazolli-t'Serstevens of the Musée Guimet, Françoise Wang, the librarian of the Institut des hautes études chinoises of the Collège de France, Jean Schmitt of the Metropolitan Museum of Art, and Don W. Dragoo of the Carnegie Museum of Natural History, for allowing me to examine the inscribed oracle-bone fragments in their collections. I owe a debt of thanks to James F. Berry of the Department of Biology of the University of Utah for making the turtle identifications and for writing appendix 1, to John M. Legler of that same department for providing the facilities for Berry's research, and to Richard Kunst and Douglas McOmber, who made the plastron measurements. Graduate students have contributed much to my understanding of the Shang, both as seminar participants and as research assistants. I should like to thank Dessa Bucksbaum, Sue Currie, Inge Dietrich, Sue Glover, Morgan Jones, David Kamen, David Keegan, Richard Kunst, Bonnie Ng, John W. Olsen, and Beth Upton. I am grateful to David Keegan, Richard Shek, and Ronald P. Toby for helping with Bibliography B, and to Dessa

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[9] In some cases, rubbings have recently become available for inscriptions which had previously only been published as drawings; rubbings of the inscriptions in *Nan-pei*, "Ming," and certain inscriptions in *K'u-fang*, for example, may now be found in *Ming-hou* and *US* respectively (for other cases, see ch. 5, n. 56). In order to facilitate finding the inscriptions in Shima Kunio's *Inkyo bokuji sōrui* (sec. 3.3.2), however, it is still the drawings that are cited in this book; the equivalent rubbings are given in the finding list.

Bucksbaum for preparing the finding list and index. A more intangible academic debt is owed to Chao Lin, formerly of the Academia Sinica, who aroused my interest in the Shang inscriptions and guided my first faltering steps. And my awareness of the importance of historiographical problems, the rigor with which they should be pursued, and the rewards of doing so owes much to Hans Bielenstein and C. Martin Wilbur, my teachers at Columbia University. It is a special pleasure to thank my many colleagues and friends at Berkeley—in particular, Delmer Brown, Irwin Scheiner, Frederic Wakeman, and the other Far Eastern historians, Eric Gruen and Raphael Sealey in Classical History, John Cikoski in Oriental Languages, and Wolfram Eberhard in Sociology—whose support and critical interest have encouraged and guided my efforts.

The staff of the East Asiatic Library at Berkeley has been an unfailing source of informed assistance. The Library Delivery Service of the Main Library at Berkeley also deserves special thanks for its speed and courtesy. I am grateful to Shima Kunio and his publishers for permission to reproduce transcriptions from his *Inkyo Bokuji Sōrui.*

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D.N.K.

Berkeley, 12 January 1977

POSTSCRIPT

Well over a year and a half having passed since it became impossible to make significant changes in the manuscript, I should like to refer the reader to recent developments, archaeological and scholarly, which bear on issues discussed in this book.

The excavation at Hsiao-t'un in the spring of 1976 of tomb number 5, undisturbed and lavishly furnished with grave goods, was an unprecedented archaeological event (*KK* 1977.3; 1977.5; a further report is due to appear in *KKHP* 1977.2). (Bibliographic references to the postscript are given on pp. 255–256.) The name of Fu Hao 婦好 appears on over sixty of the bronze vessels, and the temple name, Ssu Mu Hsin 司母辛 (to be read perhaps as Hou 后 [?] Mu Hsin or Kou 姤 [?] Hsin) appears on four. These inscribed names not only identify, it is presumed, the main occupant of the tomb, but also bear on the question of when the Shang first started to cast inscribed bronze vessels (p. 134, n. 2, below). Most scholars believe the tomb to be the late period I burial of the Fu Hao who was Wu Ting's consort (see the oracle-bone inscriptions at S139.4–141.1). This conclusion, whose final acceptance must await the full report of the grave and its contents, bears in turn on the absolute date of Wu Ting's reign. If, as Cheng Chen-hsiang 鄭振香 and Shih Chih-lien

石志廉 suggest (*KK* 1977.5, pp. 341, 348), the tomb of Fu Hao was roughly contemporary with the great tomb at Wu-kuan-ts'un (WKGM 1), so that it too may be dated to late period I, rather than to period II or later, then the corrected carbon-14 date of 1241 ± 160 B.C. for WKGM 1 (table 2, sample ZK-5) accords well with the date of 1200–1181 B.C. assigned to period I by the revised short chronology of table 38 (on these points see p. 173, n. 13, and p. 176, n. 28). (Scholars interested in carbon-14 dates, including those given in table 2, may now consult the convenient summary provided by Hsia Nai [1977]; his discussion bears on the relative age of Neolithic sites at which pyromantic remains have been found [p. 5, n. 14, below].)

More recent, and equally extraordinary, was the discovery, some 100 kilometers west of Sian, of over 15,000 oracle-bone fragments (mainly turtle-shell), supposedly divined by the Western Chou. According to the initial news report, 127 of the shell fragments bore writing. The inscriptions, which are said to record that Wen Wang of Chou sacrificed to Ti Yi of Shang, and that the Shang king came to the Chou homeland in Shensi (Hsinhua-she, 1977), will, when published, presumably throw light on Shang-Chou relations (cf. p. 180, n. 23); if the inscriptions contain the term *Yin-wang* 殷王, as reported, then the Chou appear to have referred to the Shang as Yin prior to the conquest (cf. p. xiv, n. 8). The find also indicates that the Late Shang practice of cracking and inscribing large numbers of oracle bones may have been more widespread than the present corpus of inscriptions, excavated primarily in the Hsiao-t'un area, would suggest (cf. my comments on p. 138).

It should be noted that Chang Kwang-chih (1977) has superseded Chang (1968) as the basic introduction in English to the field of Shang archaeology and culture.

In the realm of oracle-bone scholarship, what I have called the *t'ou* period (p. 43, n. 79) is the subject of a new study by Lung Yü-ch'un (1976). The function of the word represented by the graph *yu* 㞢 (p. 78, n. 85) has been further discussed by Nivison (1977a), whose conclusions (first advanced in Nivison [1977]) have in turn been challenged by Takashima (1977a). Yü Hao-liang (1977) argues that the crack notation usually read as *hung-chi* (p. 121) should be read as *yin-chi* 引吉, "prolonged auspiciousness." The publication of Mickel (1977a) provides indexes to rejoined and reduplicated fragments in Britton (1935), Creel (1937), *K'u-fang*, *Pai-ken*, *Ts'ui-pien*, *Wen-lu*, and the three *Yeh-chung p'ien-yü* collections (see *Yeh-ch'u*, *Yeh-san*, in Bibliography A); this supplements his other indexes cited at p. 150, n. 66, and in table 9. Chou Hung-hsiang's initial use of the computer to match oracle-bone fragments (p. 150, n. 68) has been carried a step further by scholars in Peking (Tung, Chang, and Ch'en [1977]). Chiang Hung (1976), dealing with the question of whether recently discovered Shang sites in the middle Yangtze region were part of the Shang state, Hu Hou-hsüan (1977), dealing with the subject of bird totemism, and Shen Wen-cho (1977), dealing with slaves and their agricultural role, should be added to the list of recent works (p. 154, n. 87) that use the inscriptions to study Shang history.

3 January 1978

Preamble

The sun's rays glint first on mountains to the west, then, moments later, touch the thatched roofs of the temples and pit dwellings that follow the curve of the Huan. The river, still in shadow at the foot of the earthen cliff, winds to the southeast between clearings of sprouting millet, on its way to merge with the powerful Ho. The year is the eleventh of Wu Ting's reign, the season spring, the day hsin-wei, eighth of the week.

Filtering through the portal of the ancestral temple, the sunlight wakens the eyes of the monster mask, bulging with life on the garish bronze tripod. At the center of the temple stands the king, at the center of the four quarters, the center of the Shang world. Ripening millet glimpsed through the doorway shows his harvest rituals have found favor. Bronze cauldrons with their cooked meat offerings invite the presence of his ancestors, their bodies buried deep and safely across the river, but their spirits, some benevolent, some not, still reigning over the royal house and the king's person. One is angry, for the king's jaw ached all the night, is aching now, on the eve of his departure to follow Chih Kuo on campaign against the Pa-fang.

Five turtle shells lie on the rammed-earth altar. The plastrons have been polished like jade, but are scarred on their inner side with rows of oval hollows, some already blackened by fire. Into one of the unburned hollows, on the right side of the shell, the diviner Ch'üeh is thrusting a brand of flaming thorn. As he does so, he cries aloud, "The sick tooth is not due to Father Chia!" Fanned by an assistant to keep the glowing tip intensely hot, the stick flames against the surface of the shell. Smoke rises. The seconds slowly pass. The stench of scorched bone mingles with the aroma of millet wine scattered in libation. And then, with a sharp, clear, *puk*like sound, the turtle, most silent of creatures, speaks. A *pu* 卜-shaped crack has formed in the hollow where the plastron was scorched. Once again the brand is thrust, now into a matching hollow on the left side of the shell: "It is due to Father Chia!" More time passes . . . another crack forms in response. Moving to the next plastron, Ch'üeh repeats the charges: "It is not due to Father Chia!" *Puk!* "It is due to Father Chia!" He rams the brand into the hollows and cracks the second turtle shell, then the third, the fourth, and the fifth.

The diviners consult. The congregation of kinsmen strains to catch their words, for the curse of a dead father may, in the king's eyes, be the work of a living son. Ch'üeh rubs wood ash from the fire into the new set of cracks and scrutinizes them once more. But the shell has given no indication. The charge must be divined again. Two more cracks are made in each of the five plastrons . . . and there is again no sign.

Another brand is plucked from the fire and the new charge cried: "The sick tooth is not due to Father Keng! . . . It is due to Father Keng." Father Keng—the king's senior uncle. This time the indications are clear. His sons, the king's older cousins, turn away in dismay at the diviner's reading of the cracks. The spirit, their father, has been blamed. But still the work of spiritual identification continues. "It is not due to Father Hsin! . . . It is due to Father Hsin!" Ch'üeh moves methodically down the row of five plastrons, reciting the negative and positive charges and cracking each shell twice in this way. No judgment can be made. Once again, as for Father Chia, ten more cracks are burned. "Auspicious!" Ch'üeh points to two cracks on the second and fourth shells. Father Hsin is without blame, his descendants relieved. . . .

Now the king speaks. Assistants drag two victims into the temple. There is the barking and bleating of animals in panic, then silence. Blood stains the earth floor. The king dismembers the victims as Ch'üeh proposes a new charge: "We sacrifice a dog to Father Keng, and butcher a sheep." The brand flames . . . *puk* . . . *puk* . . . *puk* . . . the plastrons crack in slow and stately sequence. Has the sacrifice mollified the dead uncle? Will the pain in the sick tooth depart? The king, his hands still sticky with blood, scans the cracks. . . .

In such an atmosphere and in such ways—in a routine that must have consumed tens of thousands of hours during the Shang historical period—the Shang kings and their diviners sought to know and fix the future. As the ceremony ended, the diviner handed the five plastrons to scribes, who began the task of carving into the shell's smooth front a record of the charges proposed and results observed.[1]

The Shang kings read the mantic cracks to divine the wishes of their ancestors. We read the mantic inscriptions to divine the wishes of the Shang kings. May the oracle bones, once used to read the future, now be used to read the past!

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[1] This imaginative reconstruction, which the specialist may wish to pass over in decent silence, is generally based on evidence that can be documented in the Shang inscriptions. The plastron set is *Ping-pien* 12–21, discussed in detail in sec. 3.7. The actual year of Wu Ting's reign is hypothetical; for the season, see ch. 3, nn. 85, 98. For the description of Hsiao-t'un, I rely on Karlbeck (1957), pp. 174–192; on Tung (1965), pp. 14–15; on the reconstruction of the cult center given in Wheatley (1971), pp. 39–47; and on my own observations during a visit to the site on 1 June 1975. For evidence that some Shang divination took place at daybreak, see Tung (1945), pt. 2, ch. 5, p. 23a. The numerous divination charges of the form "Today it will not rain" (S159.3) or "Today the king hunts" (S293.4) were presumably divined early on the day in question. The Shang, undoubtedly, were early to bed and early to rise (cf. Needham [1959], p. 419, note b). I have arbitrarily selected building Yi 乙 8 (whose remains are described in detail by Shih Chang-ju [1959], pp. 89–99) as the scene of the divinations. For evidence that divination took place in the ancestral temple, see, e.g., *Chin-chang* 120 (D); *Ch'ien-pien* 8.15.1; *Nan-pei*, "Ming" 729 (D) (all S270.2); and similar inscriptions at S270.3. For the possibility that this set was divined on campaign and not in the ritual center at Hsiao-t'un, see ch. 3, n. 98. On the proverbial silence of the turtle, see Pope (1955), p. 66; on the "voice of the turtle," see ch. 1, n. 97. For the social and political implications of divination, see the works cited in ch. 5, n. 8. Exactly how the pyromantic cracks were read and by whom is not entirely clear (see secs. 2.6 and 2.7; ch. 2, n. 58). Whether it was the king or an assistant who actually dismembered the victims is not specified, but the king is recorded as sacrificer in other cases (e.g., *Chia-pien* 182; *Yi-pien* 9054, 9103; and other inscriptions at S507.1); in any event, sacrifice divinations were intimately linked to the shedding of blood.

CHAPTER I

Shang Divination Procedures

1.1 *Pyro-Scapulimancy as a Culture Trait*

Divining the future by the colorations, cracks, and other features of animal shoulder blades is a human custom widespread and venerable.[1] Historical accounts often fail to distinguish between apyro-scapulimancy, on the one hand, in which the natural condition of the bone was read after the flesh had been scraped away, and pyro-scapulimancy, on the other, in which the diviner created omen cracks in the bone by roasting or burning. As a result, the exact extent of the culture area covered by the interventionist, pyro-scapulimancy—that which the Shang practiced—is not clear. Generally speaking, however, the scapulimancy of Europe, the Near East, and North Africa was apyromantic, that of North and Central Asia and North America, pyromantic.[2]

Pyro-scapulimancy, narrowly construed to include only those cases in which a diviner read the stress cracks caused by catastrophic heating of shoulder blades, was first practiced by the Neolithic inhabitants of North China on the bones of deer, sheep, pigs, and cattle. The earliest evidence for its existence, in Liaoning, may be dated toward the last half of the fourth millennium B.C. By the end of the next millennium, scapulimancy had become one of the characteristic features of Lungshanoid village life, the charred scapulimantic remains suggesting the appearance of specialized groups of diviners and of a pyromantic theology associated, in all probability, with ancestor worship.[3]

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[1] On scapulimancy (also called omoplatoscopy) in general, Eisenberger (1938) is the basic source; Andrée (1906) is still useful. When they touch on the custom, the articles in Caquot and Leibovici (1968) cite the more modern scholarship.

[2] Cooper (1936), pp. 34, 38. Eisenberger (1938), pp. 105, 111–112, notes only two instances of European pyromancy, in Hungary and in Scotland. Lin Sheng (1963) records the presence of both forms of scapulimancy in South China. On the genetic relation between the two forms, see Cooper (1936), pp. 39–40, whose terms "pyro-" and "apyro-scapulimancy" I borrow here; Eisenberger, disagreeing with Cooper, believes apyro-scapulimancy to have been the older form.

[3] Itō (1962a), pp. 251–252, and Chang Ping-ch'üan (1967), pp. 842–851, list pyromantic finds from Lung-shan and Bronze Age sites; cf. Liu Yüan-lin (1974). For scapulimancy, Lungshanoid culture, and ancestor worship, see Chang Kwang-chih (1962), p. 184; (1968), p. 128; Wheatley (1971), pp. 27–28. For carbon-14 dates of Lung-

There is impressive evidence for the custom's proliferation in historical times. To the Shang kings, as we shall see, pyromantic reassurance was the sine qua non of daily life, and consulting the turtle continued to play a significant, if diminished, role in China during imperial times.[4] Close to home, Chinese emissaries reported the custom from Yamato Japan in the third century A.D.,[5] and it is mentioned in *Kojiki* and *Manyōshū* passages of the eighth century.[6] Far to the west, it may have been pyro-scapulimancy that warned Attila of impending defeat before the battle of Chalons in A.D. 431,[7] and an account attributed to the eleventh-century Byzantine Michael Psellus describes sheep-bone scapulimancy among barbarian (that is, nonGreek) peoples.[8] The steppe lands of Central Asia have long been congenial to the custom. Chinngis Khan was scorching the shoulder blades of sheep as a check on his astrologers,[9] and William of Rubruck saw scapulimancy in mid-thirteenth-century Mongolia at the court of Chinggis' grandson, Mangu.[10] In the seventeenth century, other missionaries, across the Pacific, found Indians near Quebec cracking "un certain os plat" of porcupines;[11] scapulimancy had flourished in North America, presumably as a culture trait diffused from Asia, among Algonquian- and Athapaskan-speaking peoples from the Mackenzie River in the west to Labrador in the east.[12] By the nineteenth and

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shan sites, see Barnard (1975), pp. 46–47. For the possibility of scapulimantic remains in Yang-shao sites, see *KK* (1959.2), pp. 63–64 (cf. Ho [1975], pp. 280, 285); Itō (1962a), p. 250; Chang Ping-ch'üan (1967), pp. 841–842. It was during the early stages of Shang culture that deer scapulas were replaced by pig scapulas (Itō [1962a], p. 250; cf. Liu Yüan-lin [1974], pp. 110–111). The earliest evidence of pyromancy comes from Fu-ho-kou-men 富河沟门 in Liaoning (formerly in Inner Mongolia; the site is at 118° 35′ E, 44° 7′ N), where some unprepared deer or sheep scapulas were found (*KK* [1964.1], p. 3, plate 1.9 [H3:24]); a sample (ZK 188) of partly carbonized birch bark (characterized as insufficient in quantity) gives a dendrochronologically adjusted carbon-14 date of 3416 ± 139 B.C. (with a one-sigma confidence level and employing the calibration curve of Clark [1975]). For the source of this date, see *KK* (1974.5), p. 336; cf. Barnard (1975), p. 64. On the problems involved with carbon-14 dating, see appendix 4, sec. 3 and table 2.

[4] The history and social significance of pyromancy in China, to say nothing of that of Chinese divination in general, has yet to be written. For Eastern Chou plastromancy, see Yagimoto (1966); for the Han situation, see *Shih-chi*, ch. 128. Hayashi Taisuke (1909), pp. 1243–1244, lists the plastromantic works cited in the bibliographical sections of later dynastic histories. Fujino (1960), p. 22, n. 6, lists the various plastromantic officers recorded down to T'ang times; as he notes (pp. 3–4), plastromancy appears to have been a technical speciality, centered on the court, but probably also practiced by the common people.

[5] Tsunoda (1951), p. 12. For Yayoi scapulimancy, see Saitō (1958), pp. 242–243.

[6] Chamberlain (1883), p. lix; Satow (1879), pp. 429–433; Philippi (1968), p. 52, n. 1.

[7] For the reasons why Jordanes' record that Attila's haruspices "examined the entrails of cattle and certain streaks in the bones that had been scraped" probably refers to pyro-scapulimancy, see Maenchen-Helfen (1973), pp. 268–270, though the caution of Eisenberger (1938), p. 81, should still be noted. In modern Mongolia, the scapula was still scraped before it was burned (Montell [1945], p. 380).

[8] Cooper (1936), p. 34; Eisenberger (1938), p. 50.

[9] Satow (1879), p. 431; Eisenberger (1938), p. 81.

[10] Rockhill (1900), pp. 187–188; cf. Wieger (1923), pp. 1676–1677.

[11] Cooper (1936), p. 29.

[12] On the hypothetical diffusion of pyro-scapulimancy from the Old World to the New, see Speck (1935), p. 128; Cooper (1936), pp. 30–31, 38; Hultkrantz (1968), p. 82; Needham (1971), p. 544. Pyro-scapulimancy was not, apparently, practiced by the Alaskan Indians on the Pacific watershed. If it came from Siberia, the culture trait was diffused in the area stretching from the Mackenzie and Peel rivers to the southeast, rather than south along the Alaskan coast.

twentieth centuries, it was reported from such areas as the south part of the Arabian peninsula, Central Asia, Mongolia, Siberia, Manchuria, South and West China, Japan, the Arctic, and Labrador.[13] The animal which supplied the scapula (and sometimes other bones) has varied; diviners have burned the shoulder blades of sheep, cattle, deer, reindeer, saiga, caribou, seal, wild boar, pig, hare, dog, lynx, fox, beaver, camel, and porcupine. But the attempt to seek reassurance about the future in burn cracks made in animal shoulder bones satisfied a characteristic human need—in ways that historians of culture have barely begun to explore—for well over five thousand years.

None felt that need more strongly, or elaborated scapulimancy more strikingly to express their central concerns, than the kings of Bronze Age China. No matter who should be given credit for the invention of the pyromantic art—sedentary Neolithic inhabitants of North China, nomadic sheep herders of Central Asia, or members of a more primitive circumpolar hunting culture[14]—the contribution of the Shang Chinese was threefold and unique. First, they divined with turtle shells (plastromancy)[15] as well as cattle scapulas, thus introducing reptiles into what had been exclusively a mammalian realm. Second, they cut orderly series of hollows or depressions into the bone or shell so that the omen cracks were no longer free-form but structured, assuming specific shapes in specific places. Third, they incised the divination records (known by the modern term *chia-ku-wen* 甲骨文, "writings on shell and bone") into the scapulas and plastrons, thus establishing themselves

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[13] For the Arabian peninsula, see Andrée (1906), p. 155; Eisenberger (1938), p. 91. For Central Asia, Mongolia, and Manchuria, see Andrée (1906), pp. 147–150; Ling Shun-sheng (1934), pp. 130–140; Eisenberger (1938), pp. 81–89; Montell (1945), pp. 380–381; Bawden (1958); Roux and Boratav (1968), pp. 302–306. For Siberia, see Bogoras (1907), pp. 487–490; Andrée (1906), p. 151; Eisenberger (1938), pp. 78–79. For South and West China, see Lin Sheng (1963, 1964). For Japan, see Fujino (1960). For the Arctic, see Lot-Falck (1968), pp. 255–256. For Labrador, see Speck (1935), pp. 127–159; Hultkrantz (1968), pp. 74–83.

[14] Eisenberger (1938), pp. 101–106, summarizes various theories about the origins of scapulimancy and argues for a single point of origin. His own hypothesis (pp. 111–112) that apyromancy originated among hunters of the European Stone Age is unsubstantiated and, as he admits, fails to account for the presence of pyromancy east of the Caucasus. For more recent views, see Roux and Boratav (1968), p. 302, and Hultkrantz (1968), p. 83, n. 2. On the Chinese origins of pyro-scapulimancy, see Chang Ping-ch’üan (1967), p. 851 and n. 119; Ho (1975), p. 285. It is not yet possible to specify the region (or regions) from which Neolithic pyro-scapulimancy may have first spread in China. An eastern origin has been suggested (Li Chi [1933], p. 576; Shih Chang-ju [1954], p. 265), and scapulimantic remains have been excavated from Lung-shan and other Neolithic sites in Liaoning, Chilin, Inner Mongolia, Hopei, and Shansi (Itō [1962a], pp. 251, 259; Chang Ping-ch’üan [1967], pp. 842–844). At present, the earliest find is that from Fu-ho-kou-men in Liaoning (see n. 3). The scapulimantic techniques of the Ch’i-chia culture in Kansu are thought to have been more primitive than those found in the lower stratum at Ch’eng-tzu-yai (Liu Yüan-lin [1974], p. 103), but no conclusions about the origin and diffusion of the custom are possible until the relative age of all the sites and of the strata within them is known. Cf. n. 23.

[15] According to Yang Chün-shih (1963), p. 192, n. 11, the term "plastromancy," the pyromantic cracking of turtle plastrons, was first coined by Li Chi. In what follows, I frequently distinguish between shell (plastrons and carapaces) and bone (scapulas). Strictly speaking, the turtle shell was itself composed of bone (Carr [1952], p. 36); thus the general term "oracle bone" will be used to refer to both shells and bones when no distinction is intended.

as the first fully literate civilization east of the Indus, the first consistent users of that logographic script which has characterized the writing of China and much of the Far East ever since, the first people of China of whom true history may be written.

The account of Shang pyromantic procedures which follows primarily describes the situation in the reign of king Wu Ting (period I);* the various changes in procedure, to the extent that we understand their evolution with time, are treated in chapter 4. Much of the discussion may, at first glance, appear forbiddingly technical. It is essential, however, that we understand what the diviners did if we are to reconstruct and decipher the records that they left behind, if we are to use those records with assurance as historical sources, and if we are eventually to grasp what the diviners and the kings they served thought they were doing. In attempting to understand a culture more than three thousand years distant from our own, we need to use every available clue. The historiography of the oracle-bone inscriptions involves more than just the inscriptions; it involves the scapulas and plastrons as well, with their hollows and burn marks and cracks.

1.2 *The Divination Materials*

Identification of the animals which supplied the bones and shells for Shang
6 pyromancy may tell us something of their habits and character, and thus of Shang patterns
of domestication. It may tell us something of their geographic distribution, and thus provide
information about the extent of Shang hegemony and of trade or tribute routes. It may
also assist modern attempts to duplicate Shang divination procedures and the subsequent
carving of inscriptions.

1.2.1 *Bovid and Other Bones*

Neolithic diviners used the scapulas of bovids (cattle and water buffalo), pigs, sheep, and deer. Shang diviners continued to use these materials, but they relied increasingly upon bovid bones, which, together with turtle plastrons (sec. 1.2.2), they were using almost exclusively by the An-yang phase.[16] The An-yang scapulas have been identified as those of cattle (*Bos exiguus* Matsumoto) or water buffalo (*Bubalus mephistopheles* Hopwood), but the specific identifications should be treated with caution.[17] Furthermore, due to the difficulty of distinguishing one type of scapula from the other, we cannot yet tell whether the Shang diviners used scapulas from both types of animals or from just one.[18] The preponderance of water buffalo remains over those of cattle, however, suggests that buffalo scapulas would have been in greater supply.[19] Both animal types, which were probably indigenous to North China and domesticated in Shang times, are now extinct.[20]

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*For the five periods, see sec. 4.2.

[16] For a useful list of the scapulimantic materials found in Neolithic and Shang sites, see Itō (1962a), pp. 251–252, and Chang Ping-ch'üan (1967), pp. 842–848. Both articles overlook the early Shang scapula(s) (?) prepared with hollows, found at Lu-ssu-ts'un 鹿寺村 in western Honan in 1959 (*KK* [1964.9], p. 436, fig. 3.10). Unprepared scapulas have recently been found at Erh-li-t'ou 二里头, Honan (*KK* [1974.4], p. 241), Tz'u-hsien 磁县, Hopei (*KKHP* [1975.1], p. 98), Ning-ch'eng 宁城, Liaoning (*KKHP* [1975.1], p. 126, plates 5.4–5), and Ch'i-chia 齐家, Kansu (*KKHP* [1975.2], pp. 87–88). Liu Yüan-lin (1974) discusses the various types of bone used and the increasing degree to which they were prepared by sawing, polishing, and hollow making (secs. 1.3; 1.5). See too n. 25.

The cranium, astragalus (ankle bone), and ribs of these bovids were also occasionally divined at An-yang, but such bones were primarily used for practice inscriptions or record keeping. Human and deer skulls were also inscribed with records, as were other bones from deer and horses, but with the exception of one horse scapula, they do not appear to have been used for pyromancy.[21] Most of the nondivination writings on bone are records of hunt or sacrifice from period V, often given with a Shang date, and may have been carved on the bone of the animal or human victim.[22]

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[17] The terms *Bos spp.* and *Bubalus spp.*, indicating that specific identifications are still questionable, are probably to be preferred. The standard identifications given in the text, originally made by Matsumoto Hikoshichirō (1915), pp. 32–34, (1927), pp. 51–52, and Hopwood (1925), and revised by de Chardin and Young (1936), pp. 44–52, 56, 58 (cf. Ch'en Meng-chia [1956], p. 5, quoting a 1953 letter from Yang Chung-chien, i.e., Young), are based not on the scapulas but on cranial fragments, mandibles, a large number of canon bones, and, above all, on the massive, sharply trihedral horn cores with their strongly inclined backward orientation. The link between these specimens and the plastromantic scapulas is circumstantial. Note that these identifications were made at a time when new scientific names were given to fossils with considerable freedom. Osteoarchaeologists have only started to deal with the many problems of postcranial identification. As with the case of the turtles (sec. 1.2.2), further study may permit the relegation of the specimens, especially the *Bos*, to synonymy with other known species. Note, for example, the comment of C. C. Young (1936), p. 515, n. 1, that a water buffalo "of a type strikingly similar to the fossil *Bubalus* of China" occurs as far west as Germany.

[18] Shih Chang-ju (1953), p. 9. The scapulas of cattle and buffalo may differ. According to MacGregor (1941), p. 444, a buffalo scapula in contrast to a cattle scapula has "a convex anterior and a concave posterior border, as in the horse. The junction with the cartilage at the posterior edge shows a distinct notch. The acromium arises at an angle of 60° instead of 80 to 90°." And Richard H. Meadow tentatively concludes (letter of 7 October 1975), "on the basis of *one* specimen of *Bubalus* here [the Museum of Comparative Zoology, Harvard University], it seems that it is relatively wider in relation to its length than is the case with *Bos*." But even if further study confirms these distinctions, it will be hard for the oracle-bone specialist to apply them since no Shang cartilage remains, the spine bearing the acromium was sawn off (sec. 1.3.1), and complete scapulas are rare.

[19] Yang Chung-chien and Liu Tung-sheng (1949), p. 147, note that over a hundred cattle bones and over a thousand water buffalo bones had been found at An-yang.

[20] De Chardin and Young (1936), pp. 56, 58. Chou Ming-chen and Hsü Yü-hsüan (1957), pp. 460, 462, chart the distribution of fossil bovids in China; remains of *Bubalus mephistopheles* have been found only at An-yang and only during the Holocene. Cf. C. C. Young (1936), p. 515.

[21] Jao (1959), pp. 12–14, gives examples of each type; cf. Kao Ch'ü-hsün (1949), p. 155, n. 1, pp. 166, 184; Ch'en Meng-chia (1956), pp. 5–6. Yang Chün-shih (1963), p. 195, n. 16, cites seven inscribed fragments of human skulls; Li Yen (1966), p. 2, refers to eleven. Pig and sheep scapulas and the leg bones of cattle or buffalo, all of which had been used in divination, have been found in small quantities at sites such as Cheng-chou and Liu-li-ke, but not at Hsiao-t'un (Jao, loc. cit.; cf. de Chardin and Young [1936], pp. 44–52; Ch'ü Wan-li [1961], p. 5; Itō [1962a], pp. 256–257). Yen Yi-p'ing (1955), p. 24, notes that Lo Chen-yü originally mistook the edges of fragmented scapulas to be rib bones. Some rib bones, however, appear to be correctly identified (e.g., Ch'en Meng-chia [1956], plate 15, bottom; Hu Hou-hsüan [1973a], p. 60; Chou Hung-hsiang [1976], pp. 1, 7–8, citing *USB* 10 and 11). For a period III horse scapula used in divination and inscribed, see *KKHP* (1958.3), pp. 70, 71. Gibson (1934), plate 8, reproduces a deer antler incised with divination inscriptions, but these are fake. Tung Tso-pin (1961) refutes the earlier suggestion (cf. Britton [1935], pp. 1, 7) that the larger inscribed scapulas were those of elephants.

1.2.2 *Turtle Shells*

The specific part of China in which a diviner first cracked a turtle plastron rather than an animal scapula is not yet known,[23] but, in general, plastromantic remains have been found only in association with Shang sites.[24] Crudely prepared turtle shells have been found in the lowest Shang strata at Cheng-chou; they become increasingly sophisticated in their preparation as they become more numerous by comparison with scapulas.[25] It has been suggested that Shang pyromancy represents the coalescence of two Neolithic traditions: the first, a scapulimantic tradition, found along both sides of the Wei and Yellow rivers and to their north; the second, a plastromantic one, centered south and east of the Yellow River.[26] Further research and excavation may show whether this hypothesis, not yet well supported by Neolithic finds, is true.

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[22] Typical examples are *Chia-pien* 3939 (S244.2); 3940 (S537.2); 3941 (S244.2); *Ching-chin* 5281 (S465.4, but adding *yung* 用, "used in sacrifice," to Shima's transcription); *White* 1915 (52.460), which Hsü Chin-hsiung identifies as a carved and inlaid tiger bone, inscribed with a record of the tiger's capture (cf. *Bone*, pp. 96–98); *Yi-ts'un* 518 (S244.2), with ornamental carving on the other side.

[23] For what may be the earliest case of plastromancy, at Kao-huang-miao 高皇廟 (Kiangsu) in the Huai valley, see Liu Yüan-lin (1974), p. 109; Itō (1962a), p. 252, however, classifies the bone and shell fragments as late Shang. For the original report, see *KKHP* (1958.4), pp. 12, 18, plate 8.1–4.

[24] According to Shih Chang-ju (1954), pp. 267–268, pre-Shang plastromantic remains have been found only at An-shang-ts'un 安上村 in western Shantung and Hei-ku-tui 黑孤堆 in eastern Honan; Itō (1962a), pp. 251, 259, tentatively classifies these as late Lung-shan sites; Chang Ping-ch'üan (1967), pp. 844, 846, classifies them as Shang sites. The issues are partly those of definition; and the sites may be transitional. It is also possible that the prepared plastron fragment found at Hei-ku-tui may have been intrusive from a later stratum (Li Ching-tan [1947], p. 118).

[25] For Neolithic and Shang plastromantic materials, see the articles cited in n. 16. New reports of excavations carried out just south of Cheng-chou in 1955 indicate that unprepared plastrons were found in the Nan-kuan-wai 南关外 stage; plastrons with chiseled-out hollows were found in strata corresponding to the Lower and Upper Erh-li-kang 二里冈 stages. But in every case bovid scapulas predominated (*KKHP* [1973.1], pp. 70, 79, 88, 91, plates 3.1, 4.2, 13.8). It is only in the Jen-min 人民 Park phase that plastrons become more numerous than scapulas (*Cheng-chou Erh-li-kang*, p. 38). There have also been recent reports of plastromantic remains associated with the Shang cultural sites at T'ai-hsi-ts'un 台西村 in Hopei (*KK* [1973.5], pp. 267–268) and at Ch'iu-wan 丘湾 in Kiangsu (*KK* [1973.2], p. 74). In both cases, the plastrons had been prepared for divination; prepared bovid scapulas were also found, and, in T'ai-hsi at least, were more numerous than the plastrons.

[26] Shih Chang-ju (1954), pp. 268–269, proposes that scapulimancy, found in the region from Shantung and Honan to Liaotung (a region which tradition assigns to the Tung Yi 東夷) may be associated with the black-pottery culture (cf. Li Chi [1934], p. xv); and that plastromancy, originating in the Huai valley (the region of the Huai Yi 淮夷) may be associated with the impressed-pottery culture. See too, Itō (1962a), p. 259, map; cf. Kaizuka (1967), p. 197; Ho (1975), p. 283, n. 33; also n. 23 above. Chinese myth, incidentally, credits the culture hero Fu Hsi with the invention of plastromancy, but the attribution first appears in *Wu-yüan* 物原 of Ming times (Ling Shun-sheng [1971], p. 22). Nor may any credence be given to Sung accounts of a divine tortoise shell sent from the region of present Vietnam to the court of the sage emperor Yao in 2361 B.C. (Thai Van-kiem [1963], pp. 584–585), though a southern origin for both the custom and some of the Shang shells cannot be excluded (see n. 43).

As for the types of turtle used, a thorough paleontological examination of the inscribed shells, long needed, has now been undertaken by Berry, whose methods and conclusions are given in appendix 1. Working with the reconstructed plastrons in *Chia-pien, Ping-pien,* and *Yi-pien,* he finds four chelonian species represented:[27] (1) *Ocadia sinensis,* (2) *Chinemys* (=*Geoclemmys*) *reevesi,* (3) *Mauremys* (=*Clemmys*) *mutica,* and (4) a single example, *Testudo emys.* The An-yang field tortoise, *Testudo anyangensis,* who still crawls through many monographs, is probably not extinct, but taxonomically superfluous; the Shang diviners may be absolved of the charge of exterminating the species.[28]

A list of Berry's identifications is provided in tables 3 and 4. The following conclusions may be drawn from his research. *Ocadia sinensis, Chinemys reevesi,* and *Mauremys mutica* are all aquatic, freshwater turtles; they are generally thought good to eat; and they can be kept in captivity. The fact that *Ocadia sinensis* and *Mauremys mutica* are now found only in South China raises the possibility that their shells may have been among those which we know, from the marginal notations, to have been imported from the south (secs. 1.2.4 and 1.4). Further research may succeed in linking specific turtle varieties with the names, carved on the shell, of specific statelets or regions in the Shang sphere of influence.[29] The unique tortoise *Testudo emys* (*Ping-pien* 184) is of a species now found in Southeast Asia and the Malay Archipelago; if its shells traveled to North China in Shang times, they did so in small numbers.

It may also be remarked that the turtles used in divination were probably female. This is still the custom in Taiwan today and may be explained by the fact that the plastron of the female is smoother than the plastron of the male. Its more uniform thickness makes it more suitable for pyromantic cracking, its greater smoothness more suitable for the recording of inscriptions.[30]

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[27] It is possible that different turtle types may be represented by different oracle-bone graphs. Ting Su (1969) and Ling Shun-sheng (1971), pp. 27–29, discuss the various Shang graphs; see too, Hsü Chung-shu (1931), pp. 530–531.

[28] E.g., Crump (1963), p. 170; Vandermeersch (1974), p. 38.

[29] For example, all the marginal notations "Ch'üeh 雀 sent in 250 (shells)" (appendix 3, n. 11) were inscribed on *Chinemys reevesi* plastrons. The location of the statelet of Ch'üeh is in dispute. Hu Hou-hsüan (1944), p. 55, and Shima (1958), p. 464, locate it to the west of the Shang; Ch'en Meng-chia (1956), p. 298, locates it to the southwest; Itō (1962a), p. 268, to the southeast; Ting Shan (1956), p. 125, locates it to the south of An-yang in the K'ai-feng region; Shirakawa (1957), pp. 14, 33, also locates it south of the capital, two to three days' journey on foot. For a detailed study of the geography, see ibid., pp. 54–57. Unfortunately, none of the inscriptions indicating a southern source (see n. 43 below) are on plastron fragments large enough to be identified.

[30] On the basis of plastromantic custom in present-day Taiwan, Chang Kuang-yüan (1972), p. 22, has suggested that the Shang used female turtles. (Hu Hsü [1782–1787], ch. 4, p. 3b, reporting on Kiangsu plastromancy in the first part of the eighteenth century, refers to distinguishing the turtles by sex, but he does not indicate that one was preferred.) The presumed preference for females is supported by Berry (letter of 6 October 1975): "It is very likely that all (or nearly all) of the plastra used for divining were those of female turtles. The plastron of male *Ocadia* and *Chinemys* is rather deeply concave and would presumably be more difficult to inscribe. There would also probably be a difference in the way the 'inksqueezes' would look if males were used." Female plastrons also tend to be larger than male ones (Mao [1971], pp. 34–52).

1.2.3 *The Ratio of Bone to Shell*

The editors of more recent collections of oracle-bone rubbings generally indicate whether a particular fragment is of scapula bone or of turtle shell.[31] For the older collections, identification may be made from the rubbing on the basis of fragment shape, suture lines, and so forth, though in some cases there are no visible clues.

For the historical period as a whole, turtle plastrons and bovid scapulas were probably used by the Shang diviners in about equal numbers, though their relative popularity may have varied with time. (For differing estimates and the technical issues involved, see appendix 2.) It is possible that there was a preference for bone in period III + IV, for example, and for shell in period V.[32] The fact that the diviners of the Royal Family group (sec. 2.2.1.1) showed a preference for shell suggests that they may have valued plastrons and carapaces more than scapulas as a divination medium.[33] But, generally speaking, no

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[31] *Liu-lu* (1945) was the first collection in which shell and bone were so identified. The fragments in *Jimbun*, *Menzies*, and *White* are arranged by period and then by divination material, with an identifying "B" (bone) or "S" (shell) appended to the rubbing number; the "B" and "S" notations are used in *Ming-hou*; Hsü Chin-hsiung's commentaries to *Menzies* and *White* identify the particular area of scapula or plastron from which a fragment came. The registration numbers given for the fragments in *Chia-pien*, *Chui-ho*, *Ping-pien*, and *Yi-pien* (8532–8637 lack registration numbers) also identify the material as shell or bone. Here a word of explanation may be in order. The registration number, which was recorded after excavation on the bone or shell fragment itself, is to be distinguished from the rubbing number printed under, and generally used to refer to, the published inscription (see ch. 3, n. 5). Thus, the fragment published as *Yi-pien* 7574 (the rubbing number, printed in larger, heavier type) was first assigned the registration number 13.0.16015; *Chia-pien* 2906 had the registration number 3.2.0877. Both registration (or, in some cases, accession) and rubbing numbers are given beneath the rubbings in *Chia-pien*, *Chui-ho*, *Ping-pien*, *Yi-pien*, *Menzies*, and *White*. The registration number used by the Academia Sinica is tripartite: the first number records the dig number; the second identifies the type of object (0 = inscribed shell; 1 = uninscribed shell; 2 = inscribed bone; 3 = uninscribed bone; on the basis of *Chia-pien* 3939, 6 = inscribed bovid skull); the third is the identification number assigned to the object when it was excavated (Tung [1949], p. 2). Thus, *Yi-pien* 7574 was excavated in the thirteenth dig, it is a piece of inscribed shell, its identification number was 16015; *Chia-pien* 2906 was excavated in the third dig, it is a piece of inscribed bone, its identification number was 0877. For further discussion of these registration numbers, see ch. 4, n. 219.

[32] According to Ch'en Meng-chia (1956), p. 142, the early and late periods (i.e., periods I–IIIa and V) used both bone and shell, periods IIIb and IV generally used bone and rarely used shell. Hsü Chin-hsiung (1973a), pp. 2–3, 48–49, finds that period III inscriptions which record the diviner's name were mostly on shell, and that all period IV inscriptions (with a few exceptions in IVb) were on bone. He also finds that shell was most often used in periods I, II, and V ([1973a], pp. 26, 126). On the preference for shell in period V, see Itō (1962a), p. 253. Table 5 does not fully support these views; and the apparent preference for scapulas in periods III + IV or IV may reflect the accidents of discovery rather than a real preference (see sec. 4.3.3.3). On the use of carapaces for period V sacrifice divinations, see n. 57.

[33] The distinction may be seen from pit E16 which produced 243 rubbings on shell and 20 on bone; the Royal Family group inscriptions were all on shell. The contents of pit F36, a pure RFG find, consisted entirely of plastron fragments. Virtually all the RFG inscriptions from pits B119, YH6, YH127 were inscribed on shell; the pure RFG find, YH344, produced twice as many shell rubbings as bone rubbings. Of the 261 RFG rubbings given in *Jimbun*, 241 are on shell, only 20 on bone. Adjustment according to the fragment-to-whole-bone ratios given in appendix 2, sec. 2, would not invalidate the significance of these figures. On the other hand, a majority of the *Menzies* inscriptions which Hsü Chin-hsiung dates to period IV are on bone; a significant proportion of these should perhaps be dated to period IIa (see ch. 4, n. 44), and some to the RFG (ch. 2, n. 18). But the matter needs more research and will be discussed in *Studies*.

evident principle governed the use of bone or shell, the choice of which appears to have been unrelated to the matter being divined.[34] The diviner's indifference to the medium with which he worked, at least for certain periods, is well demonstrated by a period V case in which a series of divinations about the same event was recorded on a series of scapulas and plastrons.[35] Scapulas and plastrons varied greatly in size, but no relationship has been established between the size of the bone or shell and the importance of the topic.[36]

1.2.4 *The Sources of Bone and Shell*

It is thought that the scapulas used by the Shang diviners came in part from the cattle or water buffalo whose slaughter supplied the Shang sacrifices (and the royal table) and that many of the animals came from the Shang's own herds.[37] Bovids, presumably on the hoof, were occasionally sent by other statelets,[38] and marginal notations on scapula sockets or on bone surface (sec. 1.4) record the non-Shang provenance of certain scapulas.[39]

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[34] Later research has not supported Tung's early suggestion ([1929b], pp. 208–209) that shell was used exclusively in the first stage of pyromancy. He subsequently proposed ([1945], pt. 2, ch. 10, p. 1b) that divinations about the night used plastrons in periods III and V, carapaces in periods I, IV, and V, and scapulas in periods I and II. But these generalizations appear to be qualified by *Chia-t'u 202*, a period III carapace used for night divinations (for the meaning of the italicized rubbing number, see ch. 4, n. 1), and by the situation in *Jimbun* (1429–1458, 1623) and *Menzies* (1512–1525), where the great majority of the period II night divinations used shell. Tung also suggested ([1965], p. 117) that the New School diviners (on the Old and New Schools, see sec. 4.2) had rules about using bone or shell for particular topics. He does not give examples, and I have not found supporting evidence. The rule would appear to be contradicted by the case cited in n. 35. For further discussion of bone, shell, and divination topic, see appendix 2, sec. 3.

[35] In period Vb (Tung's New School), the campaign against the Jen-fang was recorded on both bone and shell; Tung (1945), pt. 2, ch. 5, pp. 18b–21a, reconstructs three of the plastrons and seven of the scapulas involved; cf. ibid., ch. 8, p. 8b; ch. 9, pp. 59a–60a.

[36] The largest plastron found (*Ping-pien* 184) is that of the tortoise, *Testudo emys*; it is 43.5 cm. long. The shortest I have noted (*Yi-pien* 2903) has been identified as *Chinemys reevesi*; this turtle plastron is 11.7 cm. long. For traditional accounts of plastron size, see Ling Shun-sheng (1971), pp. 24, 33, 34. The largest scapula I have noted is *Ning-hu* 1.110, approximately 43 cm. long; the smallest is *Menzies*, plate 275, which may originally have been approximately 23 cm. long. On the matter of size, cf. Kaizuka (1967), p. 199; Shirakawa (1972), p. 19.

[37] Hu Hou-hsüan (1944), pp. 55a, 59b–60a; (1944a), p. 6a; Itō (1962a), p. 255. On the gregarious and generally tractable nature of water buffalo, see, for example, Walker et al. (1968), p. 1423; on their edibility, see Levine (1919), p. 37. The fact that no water buffalo skeletons, but only those of cattle, have been found in the burial pits associated by modern archaeologists with sacrifice (Shih Chang-ju [1953], p. 9) and the further fact that, to the best of my knowledge, none of these cattle skeletons had had their scapulas removed suggest that if the pyromantic scapulas were taken from sacrificial victims, they would have come from victims that were dismembered for the sacrifice, with part of the flesh offered to the spirits, part consumed by the worshippers, and the scapulas used to divine the spirits' reactions. Since several sacrifice words appear to involve dismemberment (e.g., *mao* 卯 [S507.1–508.3]; see Serruys [1974], p. 92, n. 6), this seems a plausible speculation.

[38] E.g., *Ping-pien* 81.5–8.

[39] Hu Hou-hsüan (1944a), pp. 35a–44b. It is generally assumed that scapulas and plastrons were sent as tribute; Chou Hung-hsiang (1970/71), pp. 362–364, estimates that there were about 115 tribute-paying areas. There is also the possibility that some of the shipments involved trade or expropriation, however, and thus the marginal notations might have been accounting rather than, or as well as, tribute records. On the difficulties involved in characterizing natural resources flow on the basis of archaeological evidence, see Chang Kwang-chih (1975).

The report of the Hsiao-t'un villagers that they once found a store of several hundred turtle shells of all sizes, large and small, with plastrons and carapaces complete,[40] suggests that turtles were reared, or at least tended, in captivity. *Chinemys reevesi,* in particular, was probably native to the region, and all the turtles identified by Berry can be kept in captivity (see appendix 1, sec. 4). Since the diviners probably used more than one plastron a day (appendix 3, sec. 4), the Shang may have engaged in turtle farming to supply divination materials as well as food.

A significant proportion of the turtle shells used for plastromancy, however, appears to have come from outlying regions. The marginal notations (sec. 1.4) reveal that turtles were sent in, in the same way as were the horses, dogs, bovids, and Ch'iang captives recorded in the divination charges.[41] Shang notations record the receipt of large numbers of turtle shells with some cases involving 250, 300, 500, or even 1,000 shells, at one time.[42] The exact location of the donor statelets may never be fully determined, but notations occasionally record that shells came from the east, west, and south.[43] A study of the provenance of turtles, as recorded in pre-Han and later texts and in local gazetteers, confirms that in traditional times turtles were primarily found in the Yangtze region, the Szechwan area, and the south.[44] As we have already seen (sec. 1.2.2 and appendix 1, sec. 4), *Ocadia sinensis* and *Mauremys mutica* now have a southern habitat. Thus Shang records, traditional accounts, and zoological studies support the view that Shang plastromancy depended in part upon imported shells for its raw material.

1.3 *Initial Preparation*

The bone or shell surface was usually worked in a variety of ways before it was scorched by the diviner's brand.[45]

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[40] Tung (1929b), p. 212.

[41] Chang Ping-ch'üan (1967), pp. 852–853. See, for example, *Ping-pien* 157.11–12; 342.4–5; 342.2–3; 81.5–8; 574.

[42] Hu Hou-hsüan (1944), p. 55b. At least six *Yi-pien* plastrons (S352.2) record the "taking" (on this word, see n. 62) of 1,000 shells; the fact that the five that can be identified were all *Chinemys reevesi* and were all excavated from the same pit, YH127, suggests that they were part of a single shipment. See appendix 3, nn. 12, 14.

[43] Hu Hou-hsüan (1944a), pp. 6b–8a. *Ch'ien-pien* 4.54.6 and *K'u-fang* 592 (D) (both S246.2) may refer to turtles from the west. For the names of the tribes which sent in turtles and which are thought to have been situated to the east or west of Shang, see Hu (1944), p. 55b, but cf. n. 29 above. On the southern origin of the shells, see too Shih Chang-ju (1954), p. 269. *Ping-pien* 621.6 and *Ch'ien-pien* 4.54.4 and 4.54.5 (both S246.2) refer to turtles from the south. For clues about the political and cultural situation south of Shang and the possible existence of friendly tributaries in that region, see Kane (1974/75), p. 85 and n. 13; Hayashi Minao (1971), pp. 43–45 and n. 67, whom Kane cites, provides a map of the archaeological situation. Further insights may be gained from the excellent maps in Barnard and Satō (1975), especially map 1a, p. 92.

[44] Hu Hou-hsüan (1944a), pp. 8a–9a. Cf. Ling Shun-sheng (1971), pp. 22–24.

[45] A few inscribed scapula fragments whose surface had not been scraped smooth were excavated from pit F37 (*Chia-pien* 430; 435–437; and 1.2.0197; see Tung [1929b], p. 209, and the relevant *Chia-pien k'ao-shih* entries), but they are rare in the historical period (see secs. 4.3.2.2 and 4.3.2.3).

1.3.1 *Scapulas*

In the case of bovid shoulder blades (fig. 1), the scapular cartilage was sawn away, leaving only the bony part of the scapula; the spine on the back (or lateral) surface of the bone was cut away up to the socket so that the rear surface was leveled and roughly parallel with the front surface.[46] From one-third to one-half of the socket (the glenoid cavity) was sawn away on the rear side, leaving a half-moon-shaped section on which the marginal notations (sec. 1.4) were frequently inscribed. The tuberosity[47] near the edge of the socket was also sawn away so that a right-angled corner appears to have been cut out of the bone.[48] The neck of the socket was also leveled (fig. 2).[49]

It should be noted that bones and shells were occasionally cut into oblong tablets.[50] The number of such regular-sided tablets is larger than would appear from rubbings because the corners have been broken off, or the rubbing corners, lacking characters, have not been reproduced.[51]

1.3.2 *Turtle Shells*

Once the turtle had been killed and the shell cleaned of meat and cartilage, the dorsal portion (the carapace) and the ventral portion (the plastron) were sawn apart at the bridge, which remained attached to the plastron.[52] The rising edge of the bridge was then

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[46] "Back" is the term used by modern oracle-bone specialists to refer to the surface of bone (or shell) into which the hollows (sec. 1.5) were generally bored (for exceptions, see n. 77). In the case of scapulas, this was usually the lateral side where the bony ridge had been removed ("lateral" is the anatomical term, indicating that side of the scapula which, in the living animal, faced outward). The cracks and inscriptions generally appeared on the "front" (or "costal") surface of the scapula. In life, the socket was situated at the bottom of the bone, but since the Shang inscriptions must usually be read with the socket at the top (for exceptions, see ch. 2, n. 115), oracle-bone scholars refer to the socket-end as the top, and the broad, flat edge as the bottom. Scholars also refer to the side of the scapula on which the socket had been notched as the "inner" edge, as opposed to the "outer" edge on the unnotched side (Hsü Chin-hsiung [1974], pp. 209, 254–255). For the anatomy of the scapula (fig. 1), see Sisson (1953), pp. 84–86, 126, 145–146.

[47] This consisted of the tuber scapulae and the coracoid process to which tendons and muscles were attached; probably the gristle was hard to clean, and it was found easier to cut the bone away entirely.

[48] Tung (1954), p. 458, fig. 1. Presumably, the graph (S303.1), read as *chan* 占, "to read the cracks, prognosticate" (see sec. 2.7), depicted the scapula notched in this way. When the front side of an actual scapula is facing the viewer and the missing angle is in the top right position, then modern scholars refer to it as a right-hand scapula; if it is in the top left position, then it is a left-hand scapula (Ch'en Meng-chia [1956], p. 10). In the case of unprepared bones, when the socket is at the top and the spine (facing the viewer) is on the left side, then the scapula is termed a right scapula, and vice versa (cf. Bawden [1958], p. 7).

[49] The spine and socket were occasionally left intact during the historical period; such unprepared scapulas may have been used for calligraphy practice (Chou Hung-hsiang [1976], p. 8, citing the "unusual, if not unique" case of *US* 40). Liu Yüan-lin (1974), p. 128, concludes that prior to period I most scapulas were unprepared in this way.

[50] E.g., *Chia-pien* 2244–2247; 2870.

[51] Liu Yüan-lin (1969). The function of such tablets, which frequently record period II divinations associated with the king, has not yet been determined.

[52] The suggestion of Ting Su (1969), p. 107 (cf. Ling Shun-sheng [1971], p. 28), that *Fu-chia* 2 (S464.3) refers to the cleaning of the shell is

trimmed and the outer circumference of the entire plastron was smoothed.[53] The twelve or more outer horny scutes (also called epidermal shields or laminae) lying above the bony plates proper were stripped away and rough surfaces and fissure lines planed down so that the nine plates of the plastron thus exposed presented an even surface of fairly uniform thickness (fig. 3).[54] These preparations were designed to make it easier for the cracks to appear on the front surface and easier for that surface to be written on.[55] The carapace, which, being rougher, was used far less frequently for divination than the plastron, received similar treatment; it was generally cut down the middle and trimmed extensively to form a pair of half-shells of shoe-sole shape, which were on occasion pierced with a hole, perhaps for the insertion of a cord or thong to tie them together.[56] Carapaces appear to have been particularly favored for divining the sacrifice cycle in period V.[57]

1.3.3 *Polishing*

At a later stage—probably after the hollows (sec. 1.5) had been formed[58]—the surface of the bone or shell was rubbed and polished, presumably to render the cracks more visible, to facilitate the carving of the graphs, and also perhaps for aesthetic reasons;

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speculative. Tung (1949a), p. 271, and (1954), p. 467, suggests that tribute shells were cleaned, sawed, and polished before they were sent in. The fact that marginal notations sometimes record the sending in of carapace pairs, i.e., of a carapace divided into right and left sections (see n. 65), suggests that, in these cases at least, the carapace may have been sawn apart before it was submitted. Scholars have been puzzled by the presence on a few plastrons of a small round hole drilled through the shell at the edge of the bridge, sometimes on both the right and left sides. It is thought that the hole was made before the carapace and plastron were separated; the subsequent trimming of the bridge would explain its general absence. A similar hole has been found on a plastromantic shell excavated from a Neolithic grave in Kiangsu (Yin and Chang [1962], p. 90, plate VI.6). The connection of these holes with Shang divination is therefore uncertain; they may have been related to curing the turtle meat rather than drying the divinatory bone. See Chang Ping-ch'üan (1967), p. 855.

[53] Tung (1929), p. 84, fig. 8. For the technical vocabulary, both Chinese and English, used to describe the various segments of the shell, see Ping Chih (1931), Tung (1958), pp. 909–911; cf. Malcolm A. Smith (1931), facing p. 50; Carr (1952), pp. 37–39; Romer (1956), p. 32. The terms used in the text are shown in fig. 3.

[54] For the number of shields and plates, see Malcolm A. Smith (1931), p. 50. Fig. 3 shows the differing pattern of outer scutes and inner bony plates (cf. appendix 1, sec. 2). The rubbings listed in tables 3 and 4 all reveal the scute pattern to a significant degree. For plates with the scutes stripped away, see, e.g., *Ping-pien* 280; 289; *Yi-pien* 3426.

[55] Tung (1929), pp. 83–87; Ch'en Meng-chia (1956), p. 10; Chou Hung-hsiang (1969), p. 35. The hollows (sec. 1.5) were generally cut into the back or interior side of the shell. The inscriptions were written on the front, exterior side. Modern scholars refer to the front, head-end of the plastron as the top and to the rear, tail-end as the bottom. Right and left are defined from the viewpoint of one facing the front, exterior side of the plastron (cf. Chang Ping-ch'üan [1956], pp. 229–230).

[56] Ch'en Meng-chia (1956), figs. 2–5; Chou Hung-hsiang (1969), figs. 16–18. Carapaces that were not sawn in this way are rare (Yen Yi-p'ing [1967], pp. 6–8, reconstructs one example). Tung (1949a), p. 265 (cf. [1945], pt. 1, ch. 3, pp. 3a–b), suggests that the carapaces were split in two to form pairs like right and left scapulas.

[57] Tung (1945), pt. 1, ch. 3, pp. 3a–b, 8a, 12a, 18b; pt. 2 ch. 2, p. 1b. Some of the RFG divinations also appear on carapace (Li Hsüeh-ch'in [1958], pp. 61, 68; cf. Tung [1945], pt. 2, ch. 4, p. 4b); see, in particular, the large number of carapace fragments (reproduced in *Yi-pien* 1–237) found in pit B119.

[58] Chang Ping-ch'üan (1954), p. 225.

some of the bones and shells found at Hsiao-t'un were as highly polished as jade.[59] The care lavished on their preparation suggests the high value the Shang placed on them.

1.4 *Marginal Notations*

After the bones or shells had been sawed, scraped, and smoothed but before the hollows (sec. 1.5) were bored or chiseled, marginal notations, which recorded such matters as the source and number of shells and bones sent in, the persons associated with their handling, and the day-date, were frequently made.[60] On turtle plastrons, these administrative records were carved on the back of the bridge (and are thus called by the modern term, *chia-ch'iao k'e-tz'u* 甲橋刻辭), on the xiphiplastron (see fig. 3), or on the lower part of the carapace, near the spine. On scapulas, they might be carved either in or near the socket itself (hence *ku-chiu k'e-tz'u* 骨臼刻辭) or on the lower part of the bone, either front or back, near the edge.[61]

The "income" notations which used the verbs *ju* 入 ("[cause to enter=] send in"), *lai* 來 ("[cause to come=] send"), and ("bring, lead [?]")[62] indicate that large numbers of shells—250, 300, 500, and so forth—were received at one time.[63] In addition to indicating the size of the shipments, the figures are significant because they help us estimate the extent to which our present store of divination inscriptions is incomplete (appendix 3, sec. 2).

Since the *ju* and *lai* notations generally involve large numbers of turtle shells, and since they never include a *kan-chih* day-date, it has been suggested that these entries refer to shipments sent from afar. It may be that the verbs *ju* and *lai* never appear in the scapula notations because cattle or water buffalo were not driven to the Shang capital from great

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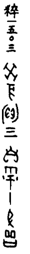
[59] Tung (1929b), p. 193; Chang Ping-ch'üan (1954), p. 225. Cf. Creel (1935), p. 176, who notes that the bones were "often scraped and polished so that they still gleam like a metal mirror." It is thought that scapulas were polished with particular care in periods I and IIa (Liu Yüan-lin [1974], p. 118).

[60] This describes the situation under Wu Ting; marginal notations were little used after period I (see sec. 4.3.1.6). The basic studies are Hu Hou-hsüan (1944, 1944a, and 1948); see too Tung (1954). The fact that marginal notations were partly erased by the hollows (as in *Ping-pien* 586; *Yi-pien* 5270; 7491) indicates that the notation must have been carved before the hollows were made (Tung [1954], p. 467; Ch'en Meng-chia [1956], p. 18).

[61] Tung (1949a), pp. 267–268. Ch'en Meng-chia (1956), p. 13, points out that these areas where the notations were carved on the plastrons were well removed from the pyromantic cracking. He also notes that the marginal notation on *Ning-hu* 1.111 (D) (which he dates to period IVa) is inscribed upside down.

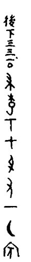
[62] Hu Hou-hsüan (1944a), pp. 10b ff., attempts to distinguish between the meanings of *ju* (S256.1–257.1) and *lai* (S200.2); for (e.g., S7.4–8.1), see Takashima (1973), p. 370, n. 28; Serruys (1974), p. 98, n. 13, summarizes the various possibilities: "bring along, lead (armies, men), bring (sacrificial victims, etc.), present (as offering, gift), to hold, use (something)."

[63] Hu Hou-hsüan (1944), p. 55b. It has been suggested that the larger payments may have referred to tribute shipments from the south (*Jimbun shakubun*, pp. 353–354). Hu (ibid., n. 77 and [1944a], pp. 11b–12b) has found notations which in total recorded the coming of 12,334 shells. This figure is deceptive, however, since two notations recording the arrival of 300 shells are more likely to be duplicate notations recorded on two shells belonging to the same 300-shell shipment rather than notations recording two separate shipments totaling 600 shells; on this point, see appendix 3, n. 12.



distances. By contrast, notations using the phrase *ch'i tzu* 三 自 (S115.4–116.1), ("request from, requisition from [?]"),[64] record far smaller numbers of bone or shell and usually contain the day-date. This suggests that such records refer to consignments requested or requisitioned from nearby localities, allowing the date the bone or shell was obtained to be established with precision, as in the socket notation "On kuei-hai, Pei (?) requisitioned from Yü ten (scapula) pairs. (Recorded by) 品."[65] Notations on bone using the verb 三 outnumber those on shell by four to one, suggesting further that the Shang tended to take scapulas rather than turtle shells from regions close to their capital.[66] Distinctions such as these may eventually throw light on the political economy of the Shang state.

The other verb frequently found in marginal notations is 丅 (S151.3–152.3). Its meaning in this context has been much debated.[67] Since the activity it represented was performed prior to the pyromantic burning,[68] it is plausible to assume that it involved the preparation of the bone or shell.[69] Since this preparation was frequently carried out or directed by one of the royal women,[70] and since the graph (though not necessarily the word)



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64. There are many theories about the meaning or meanings of the graph 三. Here I follow the majority of scholars in taking it as antecedent to *ch'i* 气. In this context it appears to have the sense of "request" or "take." For a good resumé of the scholarship, see *Jimbun* 949, *shakubun*, p. 329, n. 1; *CKWT*, pp. 151–158.

65. This notation has been found on two bones: *Ts'ui-pien* 1503 (S170.4) and *Nan-pei*, "Ming" 7 (D) (S115.4) (=*Ming-hou* 1761c), though the second lacks the name of the recorder; presumably, there were originally eight more such notations. The graph 屯 (S151.3–152.3; 482.4–483.2) appears only in the marginal notations of scapulas or carapaces. It is thought to refer either to a pair of right and left scapulas or to the pair of right and left sections into which the carapace was divided (e.g., *Ping-pien* 65; *Yi-pien* 3330; 5281; cf. n. 56). The plastron, since it was used whole, was not recorded as a 屯 (Hu Hou-hsüan [1944], pp. 64a, 68a; *Jimbun* 1091, *shakubun*, p. 351, n. 3; Ch'ü Wan-li [1965], p. 75). The graphs ((the half-moon shape of a scapula socket?) or 冎 (a picture of a scapula) apparently referred to a single scapula, i.e., to half a scapula pair (Kuo Mo-jo [1934], pp. 9–10; cf. Huang Tsai-chün [1964], p. 433), as in "Fu Hsi ritually prepared seven (scapula) pairs and one half-pair. (Recorded by) Pin" (*Hou-pien* 2.33.10 [S151.4]).

66. *Jimbun shakubun*, pp. 353, 354; Itō (1962a), pp. 254–256.

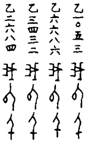
67. Among the meanings proposed for 丅 in this context are: a ritual or sacrifice with regard to the bone or shell; the making of the hollows (see n. 71); the sending in or contributing of bone or shell; the placing or taking of the bone or shell. For a summary of the scholarship, see Hu Hou-hsüan (1944), pp. 60a–b; *Jimbun shakubun*, p. 351; Itō (1962a), pp. 253–255, 267, n. 92. See too n. 74 below.

68. This is made clear by *Yi-pien* 3330 (S412.4) and 5281, a carapace pair, both with the notation "Ch'ien (?) sent in 7; Fu Ching ritually prepared. (Recorded by) Wei." None of the hollows on either piece was burned (Ch'en Meng-chia [1956], p. 18). For classical passages about rituals to prepare the turtle shell for divination, see Hu Hou-hsüan (1944), p. 63; Kaizuka (1967), pp. 199–200; Shirakawa (1972), p. 19. The original passages may be found in *SKK*, ch. 128, pp. 26–27; *CLCY*, ch. 48, pp. 2a–b (Biot [1969], vol. 2, p. 77).

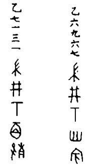
69. The fact that 丅 does not appear on oracle bones bearing the marginal notations "sent in" (*ju* or *lai*) suggests a significant difference between those sent in and those brought in (以). If 丅 did involve preparation, it is possible that the scapulas or plastrons sent in were already prepared (cf. n. 52), and that those brought in were not, and had to be prepared by the Shang themselves.

70. E.g., the inscriptions at S436.3–4; 437.4. For preliminary studies of the royal women, see Hayashi Minao (1968), pp. 50–67; Chou Hung-hsiang (1970/71); Matsumaru (1970), pp. 77–78, provides a good summary. It is not certain that these persons with the title Fu mou 婦某 were all consorts of the king; some may have been the wives of the *to-tzu* 多子, "the many sons" or "the many Tzu" of the royal Tzu lineage (Shirakawa [1954], pp. 26–27).

was the same as the graph for "altar stand," it is possible that the preparation was as much ritual as mechanical. As a tentative, functional translation, therefore, I shall use the phrase "ritually prepare."[71] Notations like "Wo[72] brought in 1,000 (shells); Fu Ching ritually prepared 100. (Recorded by) Ch'üeh" and "Wo brought in 1,000 (shells); Fu Ching ritually prepared 40. (Recorded by) Pin"[73] indicate that though both plastrons were part of a group of 1,000 which were probably obtained at one time, Fu Ching in the one case prepared 100 of them, as noted by the divining official Ch'üeh, and in the other case prepared 40 of them, as recorded by Pin.[74] The number of shells involved in these two cases was exceptionally large; the number of scapulas or plastrons prepared in this way was usually 30 or less.[75]



The officers who signed these notations sometimes have the same names as the court diviners (sec. 2.2.1.1) of period I—Cheng (S110.2), Ch'üeh (S414.3), Hsüan (S315.1–2), Pin (S276.2) and so on—and it is assumed that in these cases the diviners themselves were responsible for recording the predivinatory notations.[76]



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[71] Cf. *Chia-pien* 2071, *Chia-pien k'ao-shih*, pp. 259–260. In contexts of ancestral sacrifice (S150.1–151.2), the graph referred to some form of altar stand on which to place offerings, and thus, by extension, to the ancestral spirits who descended to visit, or who were symbolized by, that altar (Li Cheng-fu [1965], pp. 50–51; Ojima [1968], pp. 28–29; Katō [1970], 1155; cf. T'ien Ch'ien-chün [1973]). The marginal notation may indicate, therefore, that the bone or shell was "altared," that is, placed on such a stand, presumably to sanctify or consecrate it for its divinatory role. But note that although forms (a) T or (b) Ť could be used interchangeably for "altar stand," form *b* was never used in the marginal notations (S151.3–152.3); this epigraphic rigor suggests that form *a* may not have meant "altar stand" when it was used in the marginal notations (on the possibility that identical graphs might have radically different meanings, see sec. 3.5.2). The possibility of another meaning besides "sanctify," therefore, cannot be excluded. Ch'en Meng-chia (1956), p. 18, suggested that in the marginal notations form *a* referred to the making of the hollows (cf. Li Hsüeh-ch'in [1959], p. 20); this is graphically plausible; the graph might depict a drill or gouger. I know of no later evidence to support such an interpretation, but Shang usage provides some support (see n. 74).

[72] *Wo* 我 could mean either "we" or the name of a statelet; frequently it is impossible to decide which meaning was intended. For an introduction to the problem, see Ch'en Meng-chia (1956), pp. 314, 315; Jao (1959), pp. 705–706.

[73] *Yi-pien* 6686 (S414.3); 6967 (S412.4); 7131 (S414.3). Cf. n. 42.

[74] Cf. Itō (1962a), p. 255. It seems unlikely that in contexts such as these T could mean "gave as a gift, contributed"; if so, it would require that Wo conveyed the shells to Fu Ching, who in turn "gave" part of them to the royal diviners. This seems improbable, for if the royal diviners received only 100 from Fu Ching, why did they record that she was, as it were, holding back 900 more? The fact that ʗ, the term for unpaired scapulas (n. 65), never follows *ju*, *lai*, or ʄ, suggests that single scapulas were not sent in or requisitioned. The term ʗ does follow the verb T, however, on every occasion that I have found it (e.g., *Yi-ts'un* 418; *Hou-pien* 2.33.10 [both S151.4]; *Kikkō* 1.18.14; *Ts'ui-pien* 1504 [both at S152.2, but Shima's transcription may not be accurate for the second case]; *Yi-ts'un* 457), and this constitutes further evidence for thinking that T did not mean "give" or "contribute," but may have meant "prepare"; that is, scapulas would naturally be sent in pairs, two to an animal, but they could be prepared in even or odd numbers (cf. n. 71).

[75] *Jimbun shakubun*, p. 353; Itō (1962a), p. 254.

[76] Hu Hou-hsüan (1948), p. 317, provides a useful table of the officers' names. Preliminary research indicates that when the name was a diviner's it was generally not the diviner of that name who subsequently divined with the shell (e.g., *Ping-pien* 267/268; 313/314; 377/378; 379/380; *Yi-pien* 6966/6967; 7126/7127), though the names might on occasion be the same (e.g., *Ping-pien* 392/393).

1.5 *The Hollows*

After the marginal notations had been inscribed, a series of hollows was bored or chiseled into the back or inner surface of the bone or shell.[77] When heat was applied to the hollow (sec. 1.6.2) in the back, the characteristic *pu* 卜-shaped crack would form in front. These hollows thinned the bone or shell, thus making it easier to crack; they determined the crack's approximate shape and direction, and they determined its location. It is the well-ordered hollows which distinguish the structured pyromancy of the Shang from the free-form pyromancy of the Neolithic period.

The tools used to bore and chisel the hollows have not yet been specifically identified in the An-yang finds. Presumably, the bored hollows were made with a bow drill of bronze or stone, aided by the addition of an abrasive grinding powder. The chiseled hollows must have been cut with some kind of jade knife, bronze chisel, or stone burin.[78]

The form of the hollows, whose shapes evolved with time, varied in accordance with the thickness of the bone and shell. In general, the following rationale applied. When the bone or shell was very thin, it might still be cracked in the Neolithic style by the application of heat to the unprepared surface.[79] When the bone or shell was thicker, single round or oval hollows were used; single ovals frequently show no traces of having been burnt, which suggests that some may have been uncompleted, and thus unused, double hollows.[80] When the material was still thicker, double hollows (in modern terminology, *shuang-lien yao-hsüeh* 雙聯凹穴, "double-linked pits," or *tsuan-yü-tso* 鑽與鑿, "bored-and-chiseled")

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[77] For evidence that the hollows were made after the marginal notations, see n. 60. Hollows were occasionally made on the front or outer surface of scapulas or plastrons (Ch'en Meng-chia [1956], p. 11; Chang Ping-ch'üan [1967], p. 854). For good examples, see *Chia-pien* 2907; Kuo Mo-jo (1972), pp. 8–11 (reproduced in Chung-hua jen-min [1973], plates 35–36).

[78] What may have been a bronze "drill," used to bore out the hollows, has been excavated at Erh-li-kang; its diameter and curvature match those of the circular hollows found in a scapula excavated at the same place (An Chih-min [1954], p. 91, plate 16.1–2; cf. Ch'en Meng-chia [1956], p. 12, plate 5; Kaizuka [1967], p. 202, fig. 206; Liu Yüan-lin [1974], pp. 125–126). For a reconstruction of the Shang knife, based on the shape of the hollows, see Chang Ping-ch'üan (1954), p. 219; on Shang engraving knives in general, see ch. 2, n. 102, below. I can testify from personal experiment with modern steel blades and electric drills that making the hollows must have been difficult work. It was also exacting. The amount of shell left between the bottom of the oval hollow and the front surface of the plastron, for example, ranged between 0.2 and 0.5 mm. in thickness; a sharp implement and considerable skill must have been employed not to break through the shell (Chang Ping-ch'üan [1954], pp. 219–220). It is uncertain if the inscriptions contain any reference to hollow making. Kuo Mo-jo (*Ts'ui-pien* 1534, *k'ao-shih*, pp. 750–751) suggested that the graph (S363.4) referred to the preparation of the bones, but this is speculative (cf. *Jimbun* 1096, *shakubun*, p. 358, n.). The possibility that the T of the marginal notations referred to the making of the hollows has already been mentioned (nn. 71 and 74). Chan Ping-leung (1972), pp. 39–41, elaborates the theory of Lao Kan (1957) that the upper part ( ) of the graph for *shih* 史 (oracle-bone form) represents the tool used to bore the hollows. This and his other interesting speculations are unsupported by the Shang inscriptions. The term used in Chou texts to refer to the boring or chiseling process was apparently *ch'i* 契 (e.g., Hopkins [1919], pp. 115, 116–118; *GSR* 279b).

[79] Chang Ping-ch'üan (1967), p. 855; e.g., *Jimbun* 978. Such cases are extremely rare in the Hsiao-t'un finds.

[80] Chang Ping-ch'üan (1954), p. 220. See too, sec. 1.6.4.

were used (fig. 4). These were composed of (1) an oval or oblong-shaped hollow (what is now called the *tsao-ho* 棗核, "date pit" form) with the long axis vertical (that is, parallel to the long dimension of the bone or shell); this was chiseled first and usually had a vertical line at its deepest point, where the two sloping sides met; and (2) a slightly shallower, semicircular or thumbnail-shaped hollow, either chiseled or bored, to the right or left of the longer oval hollow. Generally, the axis of the chiseled oval was longer than the diameter of the semicircular hollow.[81]

Hsü Chin-hsiung has established five categories for the bored-and-chiseled hollows found on scapulas: (1) the round chiseled hollow bigger than, and containing, the long chiseled hollow; (2) the small round drilled hollow; (3) the round chiseled hollow on the shoulder of the long chiseled hollow; (4) the chiseled hollow located on the lower section of the front of the bone; (5) the long chiseled hollow unaccompanied by a round chiseled hollow.[82] The way these different hollow shapes may be used as a criterion for periodic classification is considered in sec. 4.3.2.3. With regard to the double hollows found on scapulas, Hsü stresses that many of the so-called round hollows that previous scholars have identified as drilled were, in fact, either chiseled or, more frequently, were simply the result of heat chipping with no prior cutting; rubbings cannot reveal this distinction, which must be made from an examination of the bone or shell itself. On shells, by contrast, most of the long chiseled hollows were accompanied by round hollows that had been chiseled.[83]

1.5.1 *Hollow Placement*

Cracks on shell were generally made with rigorous attention to their mirror symmetry about the central axis, a symmetry which depended upon the intentional regularity with which the hollows had originally been bored and chiseled. Since the way the hollows and cracks were likely to be placed is one of the clues by which modern scholars attempt to reconstruct whole scapulas or plastrons out of fragments (sec. 5.7), it is necessary to understand Shang practice. The figures will make clear what is difficult to describe simply or gracefully in words.

With few, if any, exceptions, the hollows on the rear of plastrons were cut so that the round hollow was chiseled on the inside shoulder of the long chiseled hollow, that is, on the shoulder closest to the central axis (fig. 4). As a result, the transverse cracks—which formed in the round hollow (see sec. 1.6.2)—all ran toward the central axis of the shell, those on the right side of the shell running to the left and vice versa.[84] The same kind of order was observed on carapaces; the round hollows being so placed with regard to the long hollows that the cracks on a right-half carapace all ran to the left and vice versa.[85] The hollows on the rear of the period I shells were frequently prepared with such marvelous symmetry (as in fig. 4) that they may be regarded as bureaucratic works of art.[86]

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[81] Tung (1929), p. 96; Chang Ping-ch'üan (1954), p. 220, fig. 2; *Jimbun shakubun*, introduction, p. 11; *Ping-pien* 95, *k'ao-shih*, p. 128.

[82] Hsü Chin-hsiung (1974), p. 12; cf. Hsü (1973a), pp. 6, 40–41, 64–65. On the first two kinds of round hollows, see too Liu Yüan-lin (1974), p. 129.

[83] Hsü Chin-hsiung (1974), pp. 6, 10–11, 13, 42, 65; cf. Hsü (1973a), pp. 15, 40–41, 88–89; on the distinction between bored and chiseled hollows, see too Liu Yüan-lin (1974), pp. 125–127.

With scapulas, the situation was less regular. Long hollows were generally cut in parallel columns below the socket and following the sides, with an extra column or columns added in the center as the scapula grew wider toward the bottom. The round, heat-chipped (or bored) hollows were frequently made on the left shoulders of the long hollows of right-hand scapulas and on the right shoulders of the hollows of left-hand scapulas; that is, viewed from the back of the bone, the round hollows all appear on the same side of the long hollow as the right-angled notch cut in the socket (fig. 2). In such cases, the cracks on a right scapula would presumably have been mirror images of those on a companion left scapula.[87] There are numerous cases, however, in which a symmetrical pattern was designed on a single scapula, the "half-pair", perhaps, of the marginal notations.[88] In these cases, the two rows of hollows were so cut that the transverse cracks ran away from the two edges of the scapula toward the center; that is, the round hollows of the left column were formed on the right-hand shoulders of the long hollows, and the round hollows of the right column were formed on the left-hand shoulders of the long hollows. In still other cases, no pattern was consistently followed.[89] For the way in which the arrangement of the scapula hollows may be used as a criterion for periodization, see sec. 4.3.2.4.

1.5.2 *Hollow Density*

In period I, for which we have the best evidence, the Shang hollow makers made no consistent attempt to use bones or shells efficiently. That is, some large plastrons had over a hundred double hollows chiseled into their backs,[90] but others of comparable size had relatively few.[91] Small scapulas or plastrons might have had many or few hollows. There were standard patterns (sec. 1.5.1) but there was no single standard number of hollows per shell. Presumably, a relatively large plastron with few hollows indicates a time when turtle shells were plentiful and could be prepared for wasteful use; a slightly smaller plastron with many hollows indicates a time when shell was scarce and had to be prepared for efficient use.[92]

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[84] Chang Ping-ch'üan (1956), pp. 240–241; Tung (1958), pp. 916–917, fig. 4. For examples, see *Ping-pien* 1; 17; 23; 27; 33; 37, etc. Perfect symmetry was not always observed on the entoplastron; an odd number of hollows (usually one or three) might be carved into this bony plate, and in such cases the "leftover" hollow usually straddled or lay near the central axis of the shell (e.g., *Ping-pien* 40; 42; 374; 378; 579); the entoplastron might also, in other cases, bear two hollows (e.g., *Ping-pien* 46; 48) or none (it seems that when relatively few hollows were to be made on the shell, none at all were made on the entoplastron, e.g., *Ping-pien* 355; 369 and *Yi-pien* 754; 4541, with ten hollows on each shell but none on the entoplastron). For a rare case in which the hollows on shell were chiseled asymmetrically, see Jao (1961), p. 957, discussing *Yi-pien* 6692.

[85] Tung (1949a), p. 266. E.g., *Ping-pien* 65/66; *Yi-pien* 4679/4680.

[86] Gibson (1938), p. 13, proposed that a bone-measuring instrument had been used to locate the site of the burning accurately, but no such instrument has been found. It has also been suggested that horizontal knife cuts found at the lower right edge of all the hollows on *Chia-pien* 747 may have been initial guide marks for the hollow maker (Liu Yüan-lin [1974], p. 117, plate 12.10).

[87] On the meaning of right and left, see n. 48.

[88] On the half-pair, see n. 65.

[89] For examples of the various patterns, see: Tung (1936a), fig. 10 (3.3.0105), fig. 17 (*Chia-pien* 657), fig. 19 (*Chia-pien* 626); Hsü Chin-hsiung (1973a), fig. 57b (*K'u-fang* 972+976 [both drawings]), fig. 65 (*K'u-fang* 1009+1128+1132+1133+1153 [all drawings]), fig. 149 (*Chia-pien* 2249).

1.6 *Burning and Cracking*

At the moment of divination, the diviner proposed the charge and applied heat to the hollow in the back; this scorched and charred the bone or shell with the result that a *pu* 卜-shaped crack formed on its front. The controlled application of heat sufficiently fierce and enduring to crack the bone or shell systematically and presumably—given the large number of cracks made per topic (sec. 2.5)—with some dispatch was no mean technical feat.[93]

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[90] *Ping-pien* 135 (fig. 4), for example, a particularly fine instance of precise, symmetrical placement, would have contained in its complete form 112 hollows chiseled into a plastron only 28.5 cm. long. *Ping-pien* 184, 44 cm. long—the largest inscribed plastron found, and identified as *Testudo emys* (see appendix 1, sec. 3)—would have contained 204 hollows (Tung [1948a], p. 122; Ch'en Meng-chia [1956], p. 8).

[91] *Ping-pien* 9 (fig. 9), for example, had only ten hollows on a plastron 19.5 cm. long.

[92] *Ping-pien* 4 and 6 are period I plastrons, both identified as *Ocadia sinensis*, both of approximately the same size (PL 27.5 and 29.5 cm., respectively), both recording divinations of the same diviner, and both excavated from the same pit; but the first, and slightly smaller, contains seventy-eight hollows; the second only twenty-four. Similarly, *Ping-pien* 579 and *Yi-pien* 754 are both period I plastrons, both identified as *Chinemys reevesi*, both excavated from the same pit, and both bearing the same marginal notation, "Ch'üeh sent in 250 (shells)" (appendix 3, n. 11); the first is far smaller (PL 16.7 cm.) than the second (PL 22.4 cm.), yet the first has thirty-one hollows, the second only ten. This is not to argue that the hollow maker lacked certain numerical models; at least four of the shells from this shipment were of the identical ten-hollow pattern (*Ping-pien* 355; 369; *Yi-pien* 754; 4541), at least nine were of the identical thirty-one-hollow pattern (*Ping-pien* 357; 374; 389; 579; *Yi-pien* 3300; 7050; 7123; 7153; 7491); see too, the remarks about the entoplastron, n. 84.

[93] I have so far been unable to crack a scapula; presumably, I have not yet found the right hard wood or other heat source (or the requisite patience). I am not the only scholar who has had troubles of this sort. Takashima Kenichi describes an attempt to crack a fresh cow scapula in June 1969: Since we were "serving barbecued beef at the party and had plenty of charcoal, I used a small piece of it to apply to a 鑿 (which I made with an electric drill). . . . Even after a few minutes, nothing happened. I thought then that a charcoal briquet didn't have enough heat; so I applied a red hot soldering iron . . . again nothing happened except for it getting a bit scorched. I got rather disgusted and so I just threw the damn thing in the whole mess of burning charcoal. . . . Divination was inauspicious. . . . In the meantime, while everyone was discussing why it wouldn't crack, the bone started to emit a stench. I was going to remove it from the fire and just before I could do so, the bone began to crack successively—Pak! Pak! Pak! It was terrific! Since we were also interested in the reconstruction of Archaic Chinese, we talked more about the sound it made: we had truly 'reconstructed' the Archaic Chinese 卜 * *pak*. . . . Karlgren, for one, wasn't too far off. . . . The lesson we then learned was that the prepared bones, and presumably shells, must have been *dried* pretty well" (letter of 14 March 1971). Takashima, in short, reproduced primitive, un-

1.6.1 *The Heat Source*

The carbonization marks on the hollow shoulders or in the hollows indicate that the Shang diviners cracked the bone or shell with a discrete heat source. The heat source was usually round and must have had approximately the same diameter as the hollow, for the entire bottom of the hollow is usually scorched; [94] further, the heat must have been intense, for it frequently destroyed the hollow's edge in whole or in part.[95]

The exact nature of the heat source has not yet been established. On the basis of *Chou-li* passages, not notable for their clarity, it has been suggested that the tip of a brightly glowing hardwood brand, kept on the verge of flaming by breaths of air, was applied to the hollow.[96] Various late Chou or Han texts indicate that a thorn brand was used.[97]

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prepared, Neolithic scapulimancy. Chang Kuang-yüan made what is probably the most serious modern attempt to reproduce Shang plastromancy on 21 November 1973. It is hoped that his experiments will be the subject of a subsequent monograph; here I give only the briefest description taken from his letter of 28 August 1975. He prepared the double hollows with a knife, each double hollow requiring thirty minutes. He then placed three burning sticks of incense in the hollow; after twenty-five minutes he heard the first sound of cracking and heard two more crack sounds at the end of thirty-five minutes. When he turned the plastron over, the cracks were still not visible on the front, and they did not appear till the incense had been burning for fifty minutes. He noted that the oil in the shell around the hollows tended to burn, suggesting that the Shang must have dried their shells before use. He also noted that the cracks lost their visibility after five days (something noted by Hu Hsü [1782–1787], ch. 4, p. 4b), a fact that helps explain the Shang custom of carving the cracks (sec. 2.10). Tung Tso-pin's accounts ([1929], p. 58; [1958], p. 921) of his own plastromantic experiments are not specific about the heat source used. Like Takashima and Chang, however, he too remarked on the sound that the crack made, the so-called *kuei-yü* 龜語, "voice of the turtle" (first referred to, I believe, by Hu Hsü, loc. cit.). For why it would be desirable to know the speed with which the Shang diviners made individual cracks, see sec. 3.7.6.

94. Chang Ping-ch'üan (1954), p. 222 and fig. 2C. Hsü Chin-hsiung (1974), pp. 210–211, has noted that the burning sometimes left two circles on the bone. "The inside circle is the area actually singed and the outside circle was affected by the heat but not directly singed" (for examples, see the backs of *Menzies* 1857; 2639). For an unusual instance of small, oblong-shaped burn marks, indicating a heat source oblong in cross-section, see the back of the scapula fragment published as *Pa-li* 10 (D). For the possibility that the changing nature of the burn marks themselves may be used as a supplementary dating criterion, see sec. 4.3.2.5.

95. Hsü (1973a), pp. 15, 88–89; cf. sec. 4.3.2.5. There is no support for the view that the Shang diviner put the bone or shell directly in the fire, as argued, for example, by Ju (1969), p. 81; such a view has long been untenable (see, e.g., Chavannes [1911], p. 132).

96. *CLCY*, ch. 47, p. 14b; ch. 48, p. 4b (Biot [1969], vol. 2, pp. 75, 78). For discussion, see Chavannes (1911), p. 132; Tung (1929), 102; Chang Ping-ch'üan (1967), p. 858.

97. For the texts, principally *Po-hu-t'ung*, *Shih-chi*, and *Yi-li*, see Ch'en Meng-chia (1956), p. 12; Chang Ping-ch'üan (1967), p. 858; cf. Tung (1929), pp. 102–103; Fujino (1960), pp. 13, 25. The fact that the sides of the hollows are not generally blackened indicates to Chang that charcoal was not used; Kaizuka (1967), p. 201, by contrast, believes that the *Chou-li* account does refer to something resembling charcoal. For the use of charcoal in the scapulimancy of other cultures, see Jochelson (1905), pp. 73–74; Ling Shun-sheng (1934), p. 136. Hu Hsü (1782–1787), ch. 4, pp. 3a–4b, reported that rural plastromancers in Kiangsu used a paste composed of charcoal, white lead, and jujube to burn the shell (cf. Tung [1929], pp. 103–105); but the cracks reported by Hu Hsü are quite different from those found on Shang plastrons, and the burn marks on the oracle bones show the Shang did not use this method. Similar objections apply to the proposal of Matsumaru ([1959], p. 3) that the Shang placed some kind of moxa on the end of a bronze drill. According to Ban Nobutomo (1773–1846), *hahaka* wood—variously identified as that of the cherry, birch, or silk tree—was used on the island of Tsushima, continuing a tradition first

More recent accounts of scapulimancy refer to clumps of flaming tinder or moxa, but these would have given heat far more dispersed than that apparently applied to the Shang bones.[98] In short, our only Shang evidence, the round burn marks in the hollows, suggests that the diviners used an intensely hot, round, hard object.[99]

1.6.2 *The Application of the Heat*

In the double hollows, the heat source was generally applied to the floor of the semicircular side hollow. When an oval hollow alone was being scorched, the heat was applied to one of the sloping shoulders of the hollow,[100] at times causing, as we have seen, the adjacent bone or shell surface to flake away.[101] The vertical crack appeared behind the center of the long chiseled hollow. Since, in the case of a true double hollow, the horizontal or transverse crack appeared behind the semicircular side hollow,[102] it was the

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recorded in *Kojiki* (Ban [1907], pp. 448, 449, 451; Fujino [1960], p. 12; Philippi [1968], pp. 52, 82–83, 559. Kaizuka [1967], p. 201, and Shirakawa [1972], p. 20, without explanation read the word as *hahaki*, some kind of twig or grass broom [?]). Shirakawa (loc. cit. and [1970], p. 657) suggests that at the critical moment of burning, water was sprinkled on the shell; presumably this generated steam and created greater stress. The idea is plausible, but is supported by no Shang, Chou, or later Chinese evidence. For other Japanese traditions, including that of inserting skewers of bamboo into deer scapulas, see Fujino (1960), p. 15.

[98] A clump of flaming tinder was used by Yünnanese scapulimancers in 1962, working with unprepared sheep scapulas with no hollows: "The 'diviner' knelt beside the fire pit, ordered people to bring a bowl, a small clump of *huo-ts'ao* 火草 (literally, "fire grass"), a pinch of rice, and a normally well preserved sheep scapula. He placed the scapula in the bowl, held the socket with his left hand, and with his right rubbed the clump of *huo-ts'ao* along the edge of the scapula, at the same time muttering a prayer.... After the prayer, he took the clump of *huo-ts'ao* and used spit to stick it to the front of the bone, afterwards bringing fire to light it.... In less than a minute, there was a sound of the bone being split by burning. The diviner quickly brushed away the ashes of the straw, took a little black ash from the edge of the fire, and dabbed some on the back of the bone where it had already cracked; he then used more spit to wash it off" (Lin Sheng [1964], pp. 98–99. Lin makes a similar report [1963], p. 164: diviners in southwest China rolled artemesia leaves or tinder between the hands to form a splint, which was placed, flaming, against the bone surface). This is unprepared, Neolithic divination; it is not Shang.

[99] Cf. Hsü Chin-hsiung (1974), p. 256, on the burn marks found in period IV hollows: "It seems that a very hard, perhaps metal, object was pressed firmly onto the bone." It is not certain that a bronze poker, such as the bore found at Erh-li-kang (n. 78), was used to provide the heat. Neolithic scapulimancers had already found a way to apply concentrated heat to bored hollows before the development of metallurgy; if a nonmetallic heat source was effective then, it presumably continued to be used in Shang times, though technical improvements may have occurred.

[100] The heat source might occasionally burn both shoulders, but this was apparently accidental (Hsü Chin-hsiung [1973a], pp. 15, 89).

[101] Tung (1929), pp. 96, 112; Chang Ping-ch'üan (1954), p. 222, fig. 2B and C; (1967), p. 854. Hsü Chin-hsiung (1973a), pp. 19, 102, indicates that "because more heat was required to crack the bone [when the long hollow was used alone], the singed area was larger and chipped away more readily" than in the case of the double hollows (cf. Hsü [1974], p. 82).

[102] Generally, the transverse crack runs right through the center of the burn mark. Cracks visible on the front of the bone are frequently invisible in back (e.g., *Menzies* 2090; 2455; 2476; 2639); when they are visible and viewed from the back, the transverse crack is frequently more visible than the vertical (e.g., *Menzies* 1857; 2455 [top hollow]; 2664; 2692). Any study of cracks should depend on observation of the actual bones, for cracks visible in the bone may not appear in rubbings (e.g., *Menzies* 2455; 2528; 2664; cf. ch. 5, n. 54, below).

drilling or chiseling of the side hollow to the right or left of the oval one that determined whether the *pu* crack would run to right or left. Similarly, the application of the heat to the right or left shoulder of the single chiseled hollow determined the general direction of the transverse crack.[103] The absence of a semicircular chiseled hollow at the side may also have caused the end of the transverse crack to fork.[104] In short, the position of the side hollow relative to the long oval and, presumably, the angle of the glowing brand as it was applied to either the single or double hollow affected the angle of the *pu* crack. But it is far from certain that the rudimentary manipulation this allowed would have significantly altered the diviner's readings.[105]

1.6.3 *The Order of Burning*

The crack numbers (sec. 2.4) subsequently engraved beside the cracks presumably reveal the order in which the hollows were burned.[106] Five major patterns may be described:[107]

1. From top to bottom. The hollows at the top of the scapula or plastron were burned first, followed in sequence by those below. Small plastrons tended to have only one such vertical row of descending hollows and cracks per right and left side; large
24 plastrons might have several.[108]

2. From inside to outside and from top to bottom. This is the commonest pattern found on the plastrons. The hollow closest to the spine was burned first, followed in sequence by those lying to its outside; when one horizontal row of hollows had been used in this way, the burning continued in the next row down, starting again from the innermost hollow.[109] The hollows of the horizontal row were not always cracked at one time; that is, instead of having four hollows running from the center to the edge, with corresponding

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[103] Ch'en Meng-chia (1956), p. 11.

[104] Hsü Chin-hsiung (1973a), pp. 19, 102: "Many bones have subsidiary cracking near the end of the diagonal crack rather than one clear diagonal crack. In most cases this occurred when the bone was singed directly on or beside the long chiseled hollow in the absence of a round chiseled hollow. As the bone then lacked a thin area in which the diagonal crack could form easily, subsidiary cracking took place" (cf. Hsü [1974], p. 82). Forked cracks may be found on scapula fragments such as *Menzies* 2639 (based on direct observation). The fact that they also appear on plastrons with their double hollows (e.g., *Ping-pien* 8.4; 28.4; 49.11 [cracks 8 and 9]; 76.5) suggests that, at least in the case of shell, the absence of the round chiseled hollows was not required for bifurcated cracks to form.

[105] The question of how the cracks were read will be taken up in *Studies*. Shape alone was not the determining factor; see Chang Ping-ch'üan (1954).

[106] Since the order in which the inscriptions were carved presumably approximated the order of burning, this section should be read in conjunction with sec. 2.9.4.

[107] Chang Ping-ch'üan (1956), pp. 231–236; (1967), pp. 861, 867. Li Ta-liang (1972), pp. 8–30, identifies eleven patterns of inscription placement and sequence on plastrons; these patterns, which relate to the sequence in which the hollows were burned, may be used to refine Chang's categories.

[108] E.g., one row per side: *Ping-pien* 69; 354; *Yi-pien* 2683; several rows per side: *Ping-pien* 373; *Yi-pien* 5279. For scapulas which follow pattern 1 see, for example, Tung (1945), pt. 2, ch. 6, p. 7b; ch. 7, p. 2a.

[109] E.g., *Ping-pien* 61; 63; 280; 293; 351; *Yi-pien* 6385; 7456; 7797.

crack numbers 1, 2, 3, 4, one might have 1 and 2 for one charge, then 1 and 2 for another charge.[110]

3. From outside to inside and from top to bottom. The hollow closest to the edge was burned first, followed in sequence by the hollows to its inside; the next row down was burned in the same way. This pattern is found rarely on plastrons.[111]

4. From bottom to top. This pattern is common on scapulas.[112] On plastrons it is found most frequently on the bridge, but it might extend over much of the shell.[113]

5. No evident pattern. This is rare.[114]

The pattern of burning on some plastrons might be the same for all the divinations performed. Other plastrons, however, might contain a mixture of patterns.[115]

1.6.4 *Density of Use*

The lack of uniform density with which the hollows were prepared has already been noted (sec. 1.5.2). There was similar variation in the efficiency with which the hollows were burned. This is true, at least, in period I, for which we have the large number of plastrons (reproduced in *Ping-pien* and *Yi-pien*) needed for such a study. In some cases, the hollows were all, or nearly all, used,[116] but this was not always true. For example, there are 174 hollows in *Ping-pien* 184, the unique tortoise plastron; only 43 of these hollows have been burned, the remaining 131 are unused. Why, after arduous preparation, only 25 percent of the hollows were used is hard to explain, especially since the front of the plastron, with the exception of a strip of inscriptions across the femoral laminae, is a *tabula rasa*, with ample room for further divination charges.[117] It should be noted that in this case 45 of the 174 hollows are single long hollows, and that not one of these 45 single hollows was burned.[118] Conceivably, these were unburned because the shell was thought too thick for the heat to be able to crack the single hollow (cf. sec. 1.5).[119] If so, it is curious that the

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[110] E.g., *Ping-pien* 304.22–24.

[111] E.g., *Ping-pien* 90, *k'ao-shih*, p. 122; *Ping-pien* 264.

[112] E.g., *Chia-t'u* 128; cf. sec. 2.9.4.

[113] E.g., on bridge: *Yi-pien* 2596; extended: *Yi-pien* 5399 (fig. 5).

[114] E.g., *Ping-pien* 184; *Yi-pien* 811; 2244.

[115] *Yi-pien* 3343, for example, contains patterns 1 and 2. The sequence on *Yi-pien* 5399 was basically from bottom to top, inside to outside, but three of its hollows were burned from outside to inside (fig. 5); this was probably a diviner's error. For other examples of confused order, see Li Ta-liang (1972), pp. 27–30, cf. pp. 87–88.

[116] E.g., *Ping-pien* 355 (ten hollows, all burned); 374 (thirty-one hollows, all burned); 539 (twenty-five [?] hollows, twenty-five burned); *Yi-pien* 754 (ten hollows, all burned); these period I plastrons all bear the marginal notation "Ch'üeh sent in 250 (shells)" (see appendix 3, n. 11) and were presumably divined at about the same time.

[117] Tung (1948a), p. 122, estimated that on the reconstructed plastron there would have been 204 hollows, of which 50 would have been used. He also cited (p. 127) a carapace (*Yi-pien* 6667) with 108 hollows, of which only 68 were used. Chang Ping-ch'üan (1954), p. 225, lists a large number of unburned hollows on the fragments excavated in the thirteenth dig at Hsiao-t'un. His plate 2 (facing p. 225) gives pictures of burned and unburned hollows. Numerous other examples may be found in the figures of Hsü Chin-hsiung (1973a), using his key at pp. 40–41; see too, the figures in Hsü (1974).

[118] *Ping-pien* 184, *k'ao-shih*, p. 266.

[119] For similar cases, see *Ping-pien* 246, *k'ao-shih*, p. 321; Liu Yüan-lin (1974), p. 117, on *Chia-pien* 726.

hollow makers did not continue their work by converting the single hollows into double ones. In some cases, ritual error may also have been involved, but a detailed study of why some hollows were burned and others were not is still needed.[120] The plausible hypothesis that the proportion of hollows actually burned became smaller as the number of hollows and the size of the plastron increased does not explain the evidence satisfactorily.[121]

Among the factors which would have to be considered in any study of hollow use are (1) the limiting role exercised by hollow, crack, and inscription density; (2) the nature of the divination topic; (3) the thickness of bone or shell, that is, the ease or difficulty with which it could be cracked; (4) the supply of prepared bones and shells available; (5) the success or failure of the particular bone or shell in previous divinations;[122] (6) the bureaucratic problem of filing; that is, it may have been simpler to use a fresh plastron rather than search out an old, partly used one; the rules of hollow use may have been no more regular than those by which a modern clerk uses scratch paper.

It seems clear, in any event, that hollows were cut according to one set of criteria and, at least on occasion, were burned according to another. Such a system was economically inefficient, the diviners making no attempt to take full advantage of the considerable labor expended by the hollow makers. Its spiritual efficiency, involving matters of ritual and belief, we cannot judge. But it is evident that the supply of bone, shell, and labor was sufficiently ample during the reign of Wu Ting for the diviners to have enjoyed great

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120. *Ping-pien* 58 provides a particularly interesting example: thirty double-linked hollows were bored and chiseled, and eight of these were not burned; of these eight, six were arranged symmetrically, three on the right and three on the left. It is significant that in the case of two out of the remaining twenty-two hollows that were burned and produced cracks, the cracks so produced were *not* numbered (for crack numbers, see sec. 2.4); and it is precisely the two unused hollows on the other side of the median line which correspond to those two hollows whose cracks were numberless. Figure 6 will make this clear. As Chang Ping-ch'üan (*Ping-pien* 58, *k'ao-shih*, pp. 93–94) suggests, it seems that after the crack-making had taken place in these two hollows on the left side, some irregularity was discovered; hence the divinations were rejected, the cracks were not numbered, and the two corresponding hollows on the right were not used at all. This suggests that Shang divination had its strict rules.

121. The hypothesis works in some cases but not in others. For examples of plastrons with over twenty hollows and few burned, see *Ping-pien* 389 (PL 18.3 cm., thirty-one [?] hollows, four burned); 579 (PL 16.7 cm., thirty-one [?] hollows, thirteen burned); 586 (PL 17.0 cm., thirty-one [?] hollows, eight burned); *Yi-pien* 7049 (PL 17.4 cm., thirty-one hollows, ten burned); 7123 (PL 17.2 cm., thirty-one hollows, eight burned). But in some cases we find that on plastrons with over twenty hollows, many or all of the hollows could be burned: *Ping-pien* 374 (PL 19.0 cm., thirty-one hollows, thirty-one burned); 539 (PL 18.0 cm. [?], twenty-five [?] hollows, twenty-five burned); 616 (PL 18.2 cm., thirty-three hollows, twenty-five burned); *Yi-pien* 7153 (PL 17.0 [?] cm., thirty-one [?] hollows, twenty-six [?] burned); all these plastrons bear the same notation, "Ch'üeh sent in 250 (shells)" (see appendix 3, n. 11). Similarly, one can find shells with small numbers of hollows, few of which are burned, e.g., *Ping-pien* 359 (PL 16.0 [?] cm., thirteen hollows, two burned).

122. John Cikoski has suggested in conversation that certain bones and shells may have been little used because they had proved to be inaccurate; a study of the crack notations and prognostications and verifications (if any), which appear on shells that had been used inefficiently might provide a way to test this hypothesis, but the evidence will frequently be lacking. *Ping-pien* 184, for example (see n. 118), contains ten charges about sacrifice, accompanied by four auspicious crack notations. But, as with all sacrifice divinations, no prognostications (sec. 2.7) or verifications (sec. 2.8) record the result.

freedom in the way they made use of the divining materials. Just as Wu Ting lavished sacrificial wealth upon his ancestors, his diviners showed no parsimony in their pyromantic attempts to foreknow the future and influence the wishes of the spiritual powers.

CHAPTER 2

The Divination Inscriptions

2.1 *Introduction*

After the diviner had cracked the oracle bone, the crack was interpreted, and an engraver then cut a record of the divination into the scapula or plastron. Since we depend upon that record for our knowledge of what took place, I want next to consider the record itself, even though it was made after the operations concerned. The record may be regarded as consisting of a preface (and postface), charge, crack number, crack notation, prognostication, and verification, though these elements were not all present in every case.[1] The description that follows refers primarily to the situation in the reign of Wu Ting (period I); for the way certain of these features changed with time, see sec. 4.3.

2.2 *The Preface and Postface*

The preface (called *hsü-tz'u* 序辭 by modern scholars) usually recorded the cyclical day on which the divination was performed, the name of the diviner, and, rarely, the place of divination. The place of divination, the month, and, by period V, the number of the sacrificial cycle might also be recorded in a postface after the charge. Presumably, when the place was not recorded, the divination took place in the ritual center at Hsiao-t'un.[2] The preface might be abbreviated in various ways, or might in some cases be omitted entirely.[3] It was usually, though by no means always, carved on the front of the bone or shell.[4]

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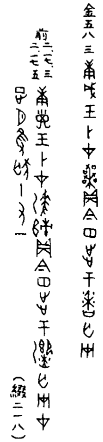
[1] Though the crack numbers and crack notations were inscribed, I shall, in the interests of clarity, limit the use of the word "inscription" to any combination of preface (and postface), charge, prognostication, and verification, that is, to those units which, singly or in combination, delimit one particular divination topic. The distinction is useful statistically since it enables us to count the number of inscriptions on an oracle bone without including the crack numbers or crack notations. In period I, the full inscription unit of preface (and postface), charge, prognostication, and verification rarely appeared. The most common inscription was either preface and charge or the charge by itself (Li Ta-liang [1972], pp. 108–119, who gives examples of the various combinations of units found in *Ping-pien*). Also note that the number of inscriptions does not necessarily equal the number of divinations (cf. n. 26), which depends not upon the written record of the divination topic itself, frequently divided into two charges, but on the number of cracks made per topic. One inscription might refer to only one crack, but it might also refer to many (see sec. 2.5).

The most common preface in period I was of the form 辛酉卜㱿 貞[5] "Crack-making on the day hsin-yu, Ch'üeh[6] divined."[7] This form, which may be generalized as *kan-chih pu X* (the diviner) **tieng* 干支卜 X 貞, together with the formula *kan-chih pu *tieng*, appears in all five periods. A typical preface recording the place is: "On the day keng-hsü, the king making cracks in Sang, divined."[8] An example of a charge straddled by a preface that specifies the day-date, diviner, and place and by a postface that specifies the month is: "On the day keng-tzu, the king making cracks in Mai(?)-tz'u(?) divined: 'Today we go to Tseng (?); there will be no disaster.' (It was) in the first month (when we) caught eleven foxes."[9] Both of these examples are from period V; for the way in which the preface and postface evolved with time, see sec. 4.3.1.7.



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[2] It is not established beyond doubt that either the *ta-yi Shang* 大邑商, "the great settlement Shang," of the period V inscriptions (S42.3–4) or the Shang where period V divinations were performed (S279.4–280.1) refers to the Hsiao-t'un site; nor is it certain that Hsiao-t'un was indeed the Shang capital (cf. the Preface). For an introduction to the problems, see Ikeda (1964), 1.13.7. On the location of Yin-hsü 殷虛 (or, with *GSR* 78a, Yin-ch'ü; but cf. Creel [1938], p. 7, n. 11), see Miyazaki (1970); cf. Keightley (1973), p. 537, nn. 36, 37.

[3] Preface abbreviations have been treated exhaustively by Chou Hung-hsiang (1969), pp. 60–67, and Li Ta-liang (1972), pp. 120–126.

[4] Not infrequently, the preface, in whole or in part, might appear on the front of the shell and the charge on the back, or vice versa (Li Ta-liang [1972], pp. 70–71, 74–79; *Ping-pien* 358/359 is a good example). Cf. n. 65 below.

[5] *Ping-pien 1.12* (period I).

[6] The bone graph for this diviner's name is 㱿, generally transcribed as 㱿 (e.g., *Ping-pien* 1, *k'ao-shih*, p. 14), which should be read Ch'üeh. See Takashima (1973), p. 324, n. 7; *GSR* 1226a. Some scholars, however, read the name K'o (e.g., Jao [1959], English table of contents, p. 2; Serruys [1974], p. 43). As Takashima notes, the assignment of modern Mandarin readings to Shang graphs is largely a matter of convenience; in many cases, especially for names, the romanization must be based upon what is supposed to have been a phonetic element in the character concerned (Barnard [1960], p. 105).

[7] Traditionally, following the *Shuo-wen* definition, *cheng pu wen yeh* 貞卜問也, "*Cheng* is to question by crack-making," the 貞 has been translated as "to question," with the charge posed as an interrogative (e.g., "Today will it rain? / Today will it not rain?" [*Ping-pien* 263.9–10]). But it is not certain that oracular 貞 (a simplified picture of a cauldron) should be read as *cheng* 貞 rather than *ting* 鼎. (According to Karlgren, *cheng* 貞 had the archaic reading of **ti̯ĕng*; *ting* 鼎 had the archaic reading of **tieng* [*GSR* 834a,g]; Chou Fa-kao et al. [1973], 9284, 11944, gives **tieng* and **teng* respectively). And, more importantly, I believe that on the basis of both etymology and Shang usage, 貞 was not interrogative and that the charge should be translated as a prayer, prediction, or statement of intent (e.g., "Today it will perhaps rain / Today it will not rain"). (The evidence for this, initially presented in Keightley [1972], will be fully discussed in *Studies*.) Takashima (1973) and Serruys (1974) also take 貞 as an indicative rather than interrogative verb, and translate it as "test." The precise meaning of 貞 is not yet clear to me, and I prefer to use "divine" as an interim, functional translation; and since we are not sure which, if either, word, *cheng* or *ting*, was its primary descendant, I prefer to romanize the graph as **tieng*, Karlgren's archaic pronunciation for both when the diacritical marks are omitted.

[8] *Chin-chang* 583 (D) (S201.4; period V).

[9] *Ch'ien-pien 2.17.3 + 2.17.5* (S202.2; period V). These scapula fragments have been joined with others to form *Ho-pien 218* (D) (=*Chui-hsin 345*). The words "it was" may be supplied on the basis of standard Shang dating practice in period V inscriptions on both bronze and bone (e.g., Matsumaru [1970], pp. 65–68); the catch of foxes was not just a record of fact but a way of specifying which first month it was. For the place names (and on their pronunciation, cf. n. 6), see *CKWT*, pp. 3385, 3392, 4125. Tung (1945), pt. 2, ch. 9, pp. 61a–63b, discusses the geography; cf. Ikeda (1964), 1.15.12, 1.15.14.

The cyclical dates recorded in the prefaces reveal that divination took place on every day of the ten-day Shang week. Certain regularities of schedule may be discerned,[10] but every day was likely to involve a stream of pyromantic burnings and crackings. Preliminary research indicates no evident periodicity in the daily work schedules of particular diviners.[11]

I can only speculate about why the preface was recorded. Presumably, the reasons were both religious and historical. The date of the divination recorded the time when the spiritual forces of the universe, revealed by the cracks, had been identified. Further, the cyclical date established that sacrifices to the ancestors—who were named by the cyclical stems Father Chia, Father Yi, and so on—had been offered on the appropriate name-day; the prefaces thus documented the orderly execution of the ritual schedule upon which the goodwill of the ancestors depended. Similarly, the carving of the diviner's name would have served to identify the officer responsible for overseeing the divination ritual, further documenting the full nature of each particular contact that was established between man and the spirits.[12]

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10. The following regularities may be cited: (1) Kuei-day divinations were more numerous than divinations made on any other day (Durrant [1972], p. 9). This is partly because routine divinations of the form "Crack-making on kuei-yu, Cheng divined: 'In the (next) ten days there will be no disaster'" always took place on the kuei-day, immediately preceding the chia-day which started the new ten-day week (sec. 2.3.1, par. 5). For an abbreviated listing of such divinations, see S165.1–168.2. *Chia-t'u 80*, a fragmentary plastron from period I, contains twenty-three divination charges of this type, ranging from the day kuei-yu of the tenth month of one year to the day kuei-hai of the fifth month of the next year. (2) Preliminary research has indicated that divinations about certain rituals like the *liao* 尞 (S202.4), *chiu* 酒 (S391.2–395.1), and *yi* 翌 (S250.2–251.2) tended to take place more frequently on kuei-days than on any other (Durrant [1972]). (3) Since the sacrifices in the regular five-ritual cycle were offered to ancestors on their cyclical name-days, divinations about sacrifice usually took place either on the name-day itself or on the day prior to the sacrifice. As the sacrificial schedule became more regular (appendix 5, sec. 2), so did the divinations about it. (4) Matsumaru (1963) has found that hunt divinations were made according to no fixed schedule in period I; at a certain point in period II, hunt divinations started to be limited to three days (yi, wu, and hsin) of the ten-day week; in III + IV, the jen-day was added; and in period V, the ting-day was added, making a total of five hunt days in all. (The validity of his conclusions may readily be checked by surveying the approximately 1,680 hunt inscriptions listed at S289.3–298.2.)

11. This conclusion is based upon all the divinations made by the period I diviner Ch'üeh that are listed in Jao (1959), pp. 73–240; I am grateful to Inge Dietrich for making this study. More information about work schedules might be discovered by studying the more systematic divinations of period IIb. Tung's hypothetical reconstruction of five scapulas ([1945], pt. 2, ch. 6, pp. 6b–7b), for example, implies that the IIb diviner Lü 旅 divined about every night for a two-month period.

12. The metaphysics and function of Shang divination will be discussed in *Studies*; for a preliminary exploration, see Keightley (1973a) and (1975c). It is conceivable that the record of the diviner's name would have permitted the king to evaluate a diviner's performance, but the small number of verifications (sec. 2.8)—those records that would have been required to evaluate the success or failure of each prognostication (sec. 2.7)—make this unlikely. The fact that the verifications we do have generally prove the forecast to have been correct again suggests that the verifications were not carved to document the success rate of particular diviners; divination failures were simply not recorded on the bone or shell. On this point see n. 83.

2.2.1 *The Diviners*

The names of approximately one hundred and twenty diviners have been identified on the oracle bones,[13] but the bulk of the divinations for which a diviner's name is recorded was performed by five period I diviners (Ch'üeh 㱿, Pin 𡧊, Cheng 爭,[14] Hsüan 亘, and Chung [?] 古 [S557–563]), six period II diviners (Ta 大, Lü 旅, Hsing 行, Chi 即, Yin 尹, Ch'u 出 [S566–570]), and one diviner from period III (Ho 何 [S572]). Diviners' names are a valuable dating criterion (sec. 4.3.1.2). The fact that their names were generally recorded in periods I and II but are rarely recorded in IV and V suggests that their role became less important. By period V, the king—who served as diviner in all five periods—was virtually the only diviner and prognosticator recorded.[15]

2.2.1.1 *Diviner Groups*

The Shang diviners may be divided into various groups. They may be separated primarily by the periods in which they were active, so that one may speak of the period I diviners by contrast with those, for example, of period IIb. But within the periods themselves, subgroups of diviners may be discerned, primarily by the appearance of their names on the same bone, by the similar content of their divinations, and by common pit provenance.[16] In period I, for example, most divinations for which a diviner's name was recorded were conducted by approximately twenty-five "court diviners." These diviners—called the Pin 𡧊 group by Ch'en Meng-chia, after the diviner whose divinations are the most numerous and typical of the group—dealt with matters involving the state as a whole: weather, agriculture, warfare, sacrifices to the nature powers, sickness of the ruling elite, and so on. The ancestral sacrifices with which they were concerned were generally limited to those addressed to dynastic ancestors (and their consorts) who had ascended the throne; it is for this reason that this group may be regarded as court diviners, concerned with sacrifices offered to members of the *ta-tsung* 大宗, the great ancestors who had actually ruled the Shang state.[17]

Other groups of diviners who were practicing, either in period I or period IV (their

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[13] Ch'en Meng-chia (1956), p. 202, gives a total of 120 diviners. Shima (1958), p. 34, lists 115 diviners; S557–576 lists 104 diviners; Jao (1959), p. 1202, gives a total of 117 diviners, with 20 more names needing further study. The discrepancies, which generally involve unique cases and disputed readings, are not significant. For specific examples of disagreement, see Li Hsüeh-ch'in (1957), pp. 125–126, who would delete 21 of the names proposed by Ch'en Meng-chia and add 5 new ones; Yen Yi-p'ing (1961), p. 521, who would delete 1 and add 4; see too the note to table 6.

[14] Ch'ü Wan-li (*Chia-pien* 138, *k'ao shih*, p. 22) reads , this diviner's name, as Yi 曳; for reasons which support the more generally accepted reading of Cheng, see Serruys (1974), p. 86, n. 3.

[15] See table 7, nos. 1.2.2, 1.5.1, 1.5.2, 3.2, etc. The way in which diviners' names may be used to indicate the evolving status of the diviners, and thus of divination itself, in Shang society will be considered in *Studies*.

[16] The hypothesis that two or more diviners divined a single charge jointly has been effectively refuted by Li Yen (1972).

[17] Ch'en Meng-chia (1956), p. 148; cf. Ch'iu (1972), p. 43. I derive the term "court diviners" from the discussion of Kaizuka (1946), p. 236. On the *ta-tsung*, see ch. 4, n. 18.

date is in dispute), are known to modern scholars as the Royal Family group and the Tzu 子 group. The rituals about which they divined included sacrifices addressed to ancestors and their consorts who had ruled; but modern scholars associate these diviners with the royal family because their divinations paid particular attention to sacrifices offered those classificatory "fathers," "mothers," "brothers," and "sons" of the royal family who had not ruled.[18] Other groupings of diviners may have existed in other periods, but more research is needed to document, and provide a rationale for, their existence.[19]

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[18] The periodization of diviners of the Royal Family and Tzu groups (see table 6 for their names) has been a matter of intense controversy. Tung Tso-pin and his supporters (e.g., Li Hsüeh-ch'in [1957]; Shima [1958]; Yen Yi-p'ing [1961]; Hsü Chin-hsiung [1973a] and [1974]; cf. Chang Ping-ch'üan [*Ping-pien* 611, *k'ao shih*, p. 95]) would place them in period IVb. Scholarly opinion, however, has sided with Tung's critics, notably Kaizuka and Itō (1953) and Ch'en Meng-chia (1956), pp. 145–155, 158–167 (who divides the disputed inscriptions into the three diviner groups of Tui 𠂤, Tzu 子, and Wu 午), placing the disputed inscriptions in period I or early II; e.g., Jao (1959), pp. 657–658, 678, 687, 747, and the summary at pp. 1204–1210; cf. Jao (1961a), p. 95; Matsumaru (1963); Ikeda (1964), preface, p. 2, and passim; Chang Tsung-tung (1970), pp. 23, 27, and passim; Shirakawa (1972), p. 125; Maekawa (1974). Hu Hou-hsüan provisionally placed such inscriptions (*Ching-chin* 2908–3068; 3115–3160; *Hsü-ts'un*, 1.1433–1.1465; 2.579–2.598) prior to period I (*Ching-chin*, preface, p. 1b; *Hsü-ts'un*, preface, p. 1). Ch'ü Wan-li (*Chia-pien k'ao-shih*, preface, pp. 3–4, 9) places Tung's period IV inscriptions in period I, though he admits there may be some errors. In this book, I use the abbreviation RFG as a generic term for any or all of these various subgroups. The issues are too technical to be resolved here; a detailed discussion of the evidence and the reasons why I would place the disputed inscriptions in period I will be presented in *Studies*. For a recent archaeological find which may support an early date for the RFG diviners, see ch. 4, n. 179. Note that if the RFG inscriptions are dated early, Tung's hypothesis ([1945], pt. 1, ch. 1, p. 2b; pt. 2, ch. 5, p. 2b; [1964], pp. 89–106) that a so-called Old School and New School (cf. sec. 4.2) *alternately* held power and shaped religious and institutional practices is without foundation. This is not to deny that a New School appears to have taken over in period IIb (see sec. 4.3.1.12); it is the hypothesis of the Old School's return in IVb that would be invalidated; the disputed inscriptions which show Old School characteristics would do so because they were contemporary with the Old School of period I, not because they were a period IVb revival of it.

[19] Itō (1962), pp. 19–21, 35, n. 46, has suggested, for example, that the Ta group of diviners in period II, headed by the diviner Ta 大, tended, like the Old School diviners (see n. 18 and sec. 4.2) of period I, to divine about the worship of local nature powers and political activities of interest to the surrounding statelets. By contrast, the Yin 尹 group of period II diviners, as represented by the diviner Hsing 行, divined about the worship of the former kings of Shang and about political matters that directly affected king Tsu Chia, the IIb ruler. Itō traces this difference in divination focus to the origins of the two groups. He suggests that the diviner Hsing was a member of a group that had had close relations with the Shang royal house from period I on; hence the more central nature of its concerns. The diviner Ta, by contrast, came from a statelet or localized lineage that had been conquered by the Shang in period I; hence the more provincial nature of this group's divinations (cf. Itō [1961], pp. 283–284). Matsumaru (1963), pp. 62–66, 72, n. 6, also discerns the existence of two groups of diviners in the period IIb hunt divinations. His A group divined according to no particular schedule and with other miscellaneous topics engraved on the bone; his B group divined according to a schedule and reserved the whole bone for hunt inscriptions alone. He regards the B group inscriptions as prototypes for the orderly inscriptions typical of period V (see sec. 4.3.1.5; appendix 5, sec. 2). These hypotheses are possible, but most of the distinctions cannot be drawn rigidly. Until further evidence is available, it is best to think in terms of tendencies rather than absolute divisions.

2.3 *The Charge*

The term "charge" (*ming-tz'u* 命辭) is used by modern scholars to refer to the topic of the divination inscription. There is no certain evidence that *ming* was a Shang term.[20] That it was used in Chou plastromancy, however, suggests that the modern term may have been used in Shang times; the Chou usage supports the view that the individual divination sentences were not questions but were wishes, tentative forecasts, or statements of intent with which the bone or shell was being charged.[21] The charge was usually, though by no means invariably, carved on the front of the scapula or plastron.[22]

2.3.1 *Content*

Few significant aspects of Shang life were undivined (on this point, cf. sec. 5.2). The following list of topics, by no means exhaustive and frequently overlapping, gives the major areas of concern in period I:[23]

1. Sacrifices. The divinations generally sought to establish in whole or in part if the offering of a particular ritual, with a particular kind or number of sacrificial victims, to a particular ancestor or group of ancestors on a particular day would be without fault or without blame and thus auspicious and efficacious.

2. Military campaigns. The major thrust of these divinations was to determine if Ti 帝, the high god,[24] would assist the Shang, if the king should ally himself with another leader or statelet, if he should issue orders to a particular officer, if he should mobilize so many thousands of men, if he should send them first to one place and then to another, and the like.

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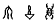
[20] The crack notation  may possibly be read as *pu tsai ming* 不再命, "not again charge (the oracle bone)." See ch. 4, n. 134.

[21] The phrase *ling-kuei* 令龜, or *ming-kuei* 命龜, "to charge the turtle," appears in *Shang-shu*, "Chin t'eng," and in *Tso-chuan*, *Chou-li*, and *Li-chi*. For the noninterrogative nature of the Shang charges, see n. 7. As indicated in the preamble to this book, it is possible that the charge was spoken at the time of divination; see, for example, the discussion of the preface formula *wang yüeh *tieng* 王曰 , "the king spoke and divined," at *Jimbun* 1460, *shakubun*, p. 405, n. 1; cf. Eisenberger (1938), p. 109. It is also possible, at least for some divinations, that the charge carved on bone was only an abbreviation of a more complete charge proposed orally for each crack (cf. sec. 3.7.4.2); this will be discussed in *Studies*.

[22] Cf. n. 65.

[23] For other listings, see Tung (1965), p. 116; Chang Ping-ch'üan (1967), p. 857; cf. n. 26 below. Sample inscriptions may be consulted as follows: (1) sacrifices (S91.3–92.3); (2) military campaigns (S329.4–331.1); (3) hunting expeditions (S289.3–298.2); (4) excursions (S67.3–68.3; 79.1); (5) ten-day week (S165.1–166.3); (6) night or day (S161.4–162.5; 105.1–2); (7) weather (S169.3–170.2); (8) agriculture (S193.1; 195.1–196.4; 197.2–198.2); (9) sickness (S447.2–448.2); (10) childbirth (S281.4–282.3); (11) distress or trouble (S303.1–305.4); (12) dreams (S450.3–451.4); (13) settlement building (S43.2–3); (14) orders (S46.3–4); (15) tribute payments (see ch. 1, n. 41); (16) divine assistance or approval (S47.2–3; 463.2–4); (17) requests (S192.1–4).

[24] Ti had dominion over rain, wind, other atmospheric phenomena, harvests, the fate of urban settlements, warfare, sickness, and the king's person. He shared some of these jurisdictions with the ancestors and nature powers, but he was the supreme religious deity.

3. Hunting expeditions. These divinations dealt with such matters as the site of the hunt, its possible success, the possibility of bad weather, and the desirability of avoiding misfortune en route. They frequently end with the incantation "there will be no disaster."

4. Excursions. These divinations sought to establish if the king should travel to a certain place, go to inspect a certain activity, and so forth and were again concerned with the desirability of avoiding misfortune en route. The standard incantation is "going and coming there will be no disaster."

5. The ten-day week (*hsün* 旬). These divinations, which were always made on the kuei-day, the last day of the week, sought to establish by means of routine, ritual incantation that "in the (next) ten days there will be no disaster."

6. The night or the day. Like the "ten-day" divinations, these charges sought to establish that the whole day or the coming night would be without disaster. Once again, I regard these divinations as routine incantations to ward off misfortune and danger. Some appear to have been made when the king was traveling, hunting, or making war and was without the defenses, spiritual as well as military, of his capital.

7. The weather. In addition to divinations about the weather to be encountered while hunting or traveling, the Shang sought to determine if it would rain, the timing of the rain and its quantity, if the rain would stop, if the sun would shine, if there would be winds, or snow or other forms of precipitation. The concern was to discover how the weather might affect agriculture, ritual activity, or the king's various expeditions.

8. Agriculture. In addition to divinations about rainfall, the Shang also divined about working the fields, about planting grain, about ordering officers and mobilizing labor gangs to reap and sow, about which spirit might be cursing the crops, and, above all, about whether Ti would confer harvest.

9. Sickness. These divinations generally specified the nature of the ailment—toothache, sick eyes, pain in the foot—and sought to determine which ancestor was cursing the king in this way and what sacrifice might effect a cure.

10. Childbirth. The charges sought to determine whether or not the childbearing of a particular royal consort would be "good," that is, whether the offspring would be male, and if the birth would occur without misfortune.

11. Distress or trouble. These divinations sought to establish whether or not the king, or a member of the royal family, or one of the king's allies would suffer distress or trouble of some unspecified sort.

12. Dreams. The charges sought to determine the potentially ominous significance of a dream, usually the king's, that had already taken place and to discover which ancestor or power had caused the dream.

13. Settlement building. The charge indicated that an urban settlement was about to be built and sought to determine whether or not Ti approved the decision.

14. Orders. The charge generally stated that a particular officer was being ordered to perform some task; an auspicious divination presumably validated the wisdom of the choice.

15. Tribute payments.[25] The charges sought to determine if a certain chief or statelet would be sending in horses, dogs, bovids, turtle shells, or Ch'iang captives to the Shang and, on occasion, in what quantity.

16. Divine assistance or approval. Divinations about a wide variety of topics ended with the wish, frequent in the case of military campaigns against enemy statelets, "We will receive assistance" or "There will be approval." The approval sought was that of Ti and the ancestors.

17. Requests addressed to ancestral or nature powers. These divinations sought to determine if ritual requests or prayers for progeny, harvest, rain, assistance, and the like would be auspicious, that is, successful. The charges were frequently concerned with determining to which ancestor the ritual ought to be addressed.

It should be possible, using Shima's *Inkyo bokuji sōrui* (sec. 3.3.2), to calculate the relative frequency of these various divination topics, but such a comprehensive study has not yet been made.[26] There is no doubt that in periods I, II, and V divinations about sacrifice were far more numerous than those about any other topic.[27] In period I, divinations about enemy attack, weather, the ten-day week, the issuing of orders, and so forth were also present in significant numbers. By period V, the scope of Shang divination had dwindled remarkably and was concerned primarily with divinations about sacrifice, the ten-day week, and the hunt (sec. 4.3.1.12).

2.3.2 *Temporal Range*

Many divinations about sacrifice appear to have taken place either immediately before or simultaneously with the offering of the sacrifice itself.[28] A few divinations, such as those which sought to identify the power responsible for a dream, sickness, or crop failure, referred to the immediate past and present. The bulk of the divinations about other topics, however, was concerned with the immediate future—the night, the morrow, or the coming ten-day week.[29]

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[25] But cf. ch. 1, n. 39.

[26] Kaizuka (1947), p. 468, revising Lo Chen-yü's original statistics, gives a table based on 1,203 inscriptions; 538 deal with sacrifices, 196 with hunting and fishing, 34 with harvests, etc; see too, Li Chi (1977), pp. 28–29. Such counts, however, need to separate inscriptions by periods and must be based on a far larger sample. Further, all such counts refer only to the number of inscriptions, not the number of divinations (see n. 1), so great care is needed in assessing the relative significance the Shang attached to certain topics (cf. Chang Ping-ch'üan [1956], pp. 247, 256–257).

[27] I am uncertain about the situation in periods III+IV, for which a large number of hunt divinations (S290.1–293.4), but not many sacrifice divinations, has been found. We cannot be sure whether this represents a real shift in Shang divination concerns or whether it is due to the accidents of retrieval (cf. sec. 5.3.1). It seems unlikely, however, that the Shang would have remained sufficiently "superstitious" to make numerous hunt divinations without remaining equally "superstitious" about the need to divine about sacrifices to the powers; it was the powers, after all, who validated the entire divination process (the theology of Shang divination will be considered in *Studies*).

[28] E.g., *Chui-hsin* 304 (fig. 7), translated in appendix 5, sec. 2. For a preliminary study of the virtual simultaneity in many cases of divination and sacrifice, see Keightley (1972), pp. 35–37. The assumption is that the divination determined the acceptability of the sacrifice as it was, or was about to be, offered (cf. appendix 5, n. 6). The issue will be discussed further in *Studies*.

More rarely, the diviner would look further ahead. Period I divinations about sacrifice might be made, for example, eight, nine, eleven, thirteen, or twenty days in advance,[30] reflecting a time when the sacrificial schedule was not yet firmly established and it was presumably still necessary to determine an auspicious day before the offering. In period IIb, and especially in period V, when the sacrificial schedule had become regular (appendix 5, sec. 2), such long-range divinations were no longer needed. A similar loss of interest in the long-range view may, in fact, be discerned in all areas of Shang divination. With the advent of the New School in Period IIb, the diviners appear to have concentrated upon the immediate spiritual climate of the day, the morrow, and the ten-day week. They were no longer concerned with long-range forecasts or prognostications.[31] These trends may be related to a general reduction in the scope of Shang pyromancy (sec. 4.3.1.12).

2.4 *Crack Numbers*

After the Shang diviners had formed cracks on the front of the bone or shell, they frequently, though by no means always, numbered the cracks to indicate their sequence in the set (on sets, see sec. 2.5).[32] In period I, the crack number (known by the modern terms *pu-chao chi-shu-tz'u* 卜兆記數辭 or *hsü-shu* 序數)[33] was a number from 1 to 10.[34] It was incised into the front (never the back) of the scapula or plastron before the charge itself was carved.[35] It was generally placed to the right or left of the upper end of the vertical crack, on the same side, right or left, as the transverse crack (fig. 8); occasionally, it was

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[29] Period I divinations enquiring whether it would rain "from today until a future *kan-chih* day" (S261.1–3) span, on the average, a period of four days. For a typical divination about sacrifice on the next day, see *Chien-shou* 5.4, translated in appendix 5, sec. 2.

[30] *Ping-pien 207.4*; *209.3*; *207.3*; *207.1*; *197.3–4*. On the increasing certainty of the ritual schedule in period IIb, see appendix 5, sec. 2.

[31] The rainfall divinations of the type referred to in n. 29 were no longer performed after period II. Prognostications which, in period I, might be both long-range and specific as to the day (sec. 2.7.1) ceased to be either in later periods.

[32] Chang Ping-ch'üan (1956), p. 237, notes that numberless cracks are frequent on turtle shells, whether inscribed or not; that many cracks with crack numbers lack inscriptions, but that in some cases the inscriptions may be found on the other side of the shell or even on another shell (cf. *Ping-pien* 24, *k'ao-shih*, pp. 51–52; Yen Yi-p'ing [1973], p. 7a). For examples of numberless cracks—which can sometimes be located in rubbings by making a tracing of the hollow positions and superimposing the tracing paper (reversed) on the front of the shell to see where cracks could be expected to have formed—see sec. 3.7.2; cf. *Ping-pien* 62, *k'ao-shih*, p. 96. The reason why certain cracks were not numbered is unclear (cf. n. 63).

[33] Tung (1945), pt. 2, ch. 3, p. 26a; Chang Ping-ch'üan (1954), p. 226.

[34] Yen Yi-p'ing (1961), p. 486, has suggested that crack number 11 appears twice on *Yi-pien* 5399 (fig. 5); if this is so—and study of the actual plastron would be needed to determine if these marks are true crack numbers—it is a unique case.

[35] I see no way to tell whether, as Tung claims ([1949a], p. 260), the crack numbers were written after the cracks had been read, rather than before. Nor can we tell whether the crack numbers were cut after each single cracking, as Chang Ping-ch'üan supposes ([1956], p. 230), or whether they were cut in sequence after all the cracks in a set were made.

placed at the end of the transverse crack.[36] Crack numbers, as we have seen (sec. 1.6.3), enable us to determine the order in which the hollows were burned; they assist the reconstruction of scapulas and plastrons from bone and shell fragments (sec. 5.7); and they are important for the study of sets (sec. 2.5).[37]

When the grooves of an engraved graph actually straddled a crack (a phenomenon given the modern name *fan-chao* 犯兆),[38] the crack numbers were commonly erased and sometimes placed elsewhere. It is this fact which tells us that the crack numbers were engraved before the charge was carved.[39] Why most straddled cracks were denumbered in this way is not clear; the crack numbers may have been erased to avoid any confusion with the content of the inscription.[40]

The routine use of crack numbers in period I is documented by their appearance on the front of every reconstituted *Ping-pien* plastron. We know it was important to record the crack numbers accurately because wrong crack numbers were frequently erased and corrected;[41] on the other hand, wrong or omitted crack numbers were on occasion allowed to pass,[42] an understandable lapse in view of the many crack numbers carved. The attention the Shang paid to crack numbers suggests that a particular crack's place in the sequence of cracks which formed a set affected the way the cracks were prognosticated.[43]

2.5 *Divination Sets*

The response to divination charges was not, in many cases, obtained from only one crack in one hollow, but from a series of cracks in a series of hollows. Modern scholars refer to such a series as a "set" (*ch'eng-t'ao* 成套). A set may be defined as the series of divinations represented by one or more sequences of numbered cracks, all made on the same day, with reference to the same topic.[44] Divination topics were frequently divided into a

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36. Chang Ping-ch'üan (1954), pp. 226, 227; (1956), p. 230; (1967), p. 861. On a few RFG plastrons the crack number is placed to the left or right of the bottom end of the vertical crack, as in *Yi-pien* 1318 (Chang [1954], p. 226; [1956], p. 230).

37. Chang Ping-ch'üan (1956), pp. 240–241. The location of the crack number indicates the direction of the transverse crack, which in turn may indicate whether the fragment comes from the right or left side of a turtle shell (on the patterns made by the cracks, see secs. 1.5.1; 1.6.2; 1.6.3).

38. Chang Ping-ch'üan (1954), p. 230. For examples of *fan-chao*, see nn. 39, 87.

39. Chang Ping-ch'üan (1954), pp. 226, 230; (1956), pp. 230–231, 236, 237; cf. *Ping-pien* 49, *k'ao-shih*, p. 83. Chang notes that these erasures are common but not always easy to discern in rubbings. He cites as examples *Yi-pien* 1354; 1500; 1905.

40. Chang Ping-ch'üan (1954), p. 230. This proposal is of interest, for it suggests that somebody, either person or spirit, who had not been immediately involved in the divination itself—or, if he had been, had forgotten the details of the charge—was expected to read the engraved inscriptions.

41. E.g., *Ping-pien* 47.15; 49.11; 93.4; 134.5.

42. E.g., *Ping-pien* 39.21; 43.5; 43.15; 81.5; *Yi-pien* 3398.

43. Cf. sec. 3.7.4.2. How the cracks were read will be discussed in *Studies*.

44. Chang Ping-ch'üan (1960); (1967), pp., 868–870, provides a good introduction to sets, as does his *k'ao-shih* to the sets or partial sets in *Ping-pien* (examples of which are conveniently assembled by Li Ta-liang [1972], pp. 100–107). Two or more sequences of numbered cracks were involved when a single divination topic was divided into two or more charges. For useful quali-

pair of charges (modern term *tui-chen* 對貞) in the positive and negative mode; for example, "We will receive millet harvest/We will not perhaps receive millet harvest."[45] In such cases, five cracks (numbered 1 to 5) might be made for the positive charge and five more cracks (also numbered 1 to 5) made for the negative charge, producing a set of ten cracks in all for this one topic (fig. 8). Generally speaking, the Shang diviners preferred making cracks in multiples of five, but in period I there appears to have been no standard number of cracks per set. (For the situation in later periods, see sec. 4.3.1.10.) I would propose the following classification for sets on period I plastrons: (1) regular sets, with five cracks on the positive side and five cracks on the negative, making ten cracks in all;[46] (2) extra-large sets, with ten cracks per charge, making, in the case of paired charges, twenty cracks per topic;[47] (3) medium-large sets, which appear to have had from five or six to nine or ten cracks per side, making, in the case of paired charges, a total of eleven to nineteen cracks per topic;[48] (4) extra-small sets, which contain less than five cracks to a charge or less than ten cracks to a pair of charges.[49]

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fications of Chang's definition of a "set," see Li Ta-liang (1972), pp. 100–103. It is highly probable that further sequences of numbered cracks were made for some topics, but with no new inscription recorded (e.g., *Ping-pien* 49.3–6; 49.8–9; 49.12–13; 61.7–11). These inscriptionless sets, which suggest that certain topics might have been cracked forty times or more, are not included in the discussion that follows since their topic cannot be identified with certainty.

[45] *Ping-pien* 8 (fig. 8). The significance of such positive and negative charges will be considered in *Studies*; for a preliminary assessment, see Keightley (1973a), pp. 13–19, 37–38, 45–49; (1975c), pp. 17–24; see too n. 124. As Li Ta-liang (1972), pp. 104–107, notes, not all sets on shell were evenly divided; some might have positive charges on both right and left, others might have two positive charges on one side to only one negative charge on the other (or vice versa). Similar variation may be found on scapulas on which above-below opposition of pairs was more usual than the right-left opposition generally found on plastrons (Chang Ping-ch'üan [1967], p. 868); for numerous examples of positive-negative and other types of pairs on scapulas, see Chou Hung-hsiang (1969), pp. 37–52; cf. Tung (1945), pt. 2, ch. 5, p. 22.

[46] E.g., *Ping-pien* 5; 8 (fig. 8); 12–21 (see sec. 3.7); 34–38; 174.

[47] E.g., *Ping-pien* 49.1–4; 67.7–8; 108.5–6; 145.1–2; 147.1–4; 169.5–6; 172.2–3; 172.6–7; 199.11–12; 199.17–18. (The presence of crack number 11 [n. 34] would raise the possibility of a twenty-two-crack set.) It might be thought that such extra-large sets were the result of a failure of the first ten cracks to yield a reading (the twenty-two crack set, for example, lacks any crack notations), but that is clearly not the case. *Ping-pien* 108.5 has a *shang-chi* 上吉 crack notation by crack 1, yet nine more cracks were made for that charge. *Ping-pien* 126.10 has a *shang-chi* by crack 1, yet six more cracks were made for that charge. This suggests the opposite alternative, that large sets were the result of a desire to pursue a "lucky streak," in the hopes of more than one auspicious reading per set. Thus, *Ping-pien* 145.1–2 has three *shang-chi* and two *hsiao-chi* 小吉 crack notations for the twenty cracks made; the fact that four of these five auspicious readings had presumably been obtained by the time the first ten cracks had been formed (cf. *Ping-pien* 172.6–7) may have encouraged the diviner to crack ten more in the hopes of a "jackpot" set. According to such a hypothesis, we would expect a high proportion of the extra-large, ten-plus crack sets to have auspicious crack notations *early* in the series; preliminary research, however, has not supported such a conclusion.

[48] E.g., *Ping-pien* 41.16–17; 49.10–13; 67.5–6; 67.9–10; 108.3–4; 126.10–11; 134.1–2; 145.5–8; 147.7–8; 149.11–12; 151.1–4; 157.1–2; 169.15–16; 172.10–11; 189.1–2; 199.15–16; 264.7–8. No set with over five cracks per side ever continues on a second plastron (see n. 52). Why some sets stopped between five and ten cracks per side is not clear. In some cases, it seems that the diviner, disgusted with a set which had yielded no response at all after thirteen or more cracks, simply gave up without completing the set and started afresh, e.g., *Ping-pien* 151.1–2 (nine and seven cracks); 157.1–2 (eight and nine cracks); 189.1–2 (seven and six cracks); 264.7–8 (eight and eight cracks).

[49] Although we cannot be sure that the set

The cracks of a set might all appear on one bone or shell or on five separate bones or shells.[50] If a paired positive and negative set of charges appeared on five turtle shells, the positive and negative charges would usually each be incised five times, either as identical "carbon copies" or, usually on the later shells in the set, in abbreviated form.[51] No set appears on more than five scapulas or plastrons.[52] Once a bone or shell had been used for a certain-numbered crack in a set, it is generally true that all the other sets divined on that bone or shell employ the same crack number (as in fig. 10, an example from period V) and possibly other crack-numbers.[53] The fact that part of a bone or shell might be used for, say, crack number 1 in a set and then some days later reused for crack number 1 in a different set suggests that the Shang diviners may, on occasion, have employed a primitive filing system which enabled them to find a particular bone (shell) or set of bones (shells) as needed.[54]

The routine use of sets suggests that repeated cracking was an important element of at least some Shang divinations. I suppose that, as with other systems of divination elsewhere, reading the omens was a sensitive and uncertain task which was made easier by having one crack to check on another.[55] As with tossing a coin, not once but many times, the use of sets presumably gave a certain weight and authority to the eventual reading and also, by multiplying the number of cracks that were made for any one charge, increased the chance

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was not completed on another plastron, there do seem to have been cases where the diviner gave up before he had made ten cracks, perhaps due to lack of response (see n. 48) or perhaps, more simply, because he ran out of space on the plastron, e.g., *Ping-pien* 126.14–17; 189.1–2.

[50] All on one shell: *Ping-pien* 8 (fig. 8); 41.16–17; 49.10–13; on five separate shells: *Ping-pien* 12–21 (see sec. 3.7); 34–38 (note that *Ping-pien* 385 is a more fully restored version of *Ping-pien* 38); 71 and 73; *Ping-pien* 80 and *Yi-pien* 2235; *Ping-pien* 207 and 209. Li Ta-liang (1972), pp. 166–169, describes the multiple-plastron sets in *Ping-pien*. As Chang Ping-ch'üan (1956), p. 253, notes, the five plastrons forming a set were all chosen to be about the same size; they were also probably of the same species (i.e., *Ping-pien* 34; 36; 37; 38 [=385] are identified as *Os*). For the possibility that scapulas or plastrons may also have been divined in groups of three, see Kuo Mo-jo (1972), pp. 2, 3; Hu Hou-hsüan (1972a), pp. 5–6; but cf. the response by Ch'iu (1972), pp. 43–44.

[51] For the way in which charges might be abbreviated, see Chang Ping-ch'üan (1956), pp. 246, 253–254; Chou Hung-hsiang (1969), pp. 60–69. For a detailed case study, see sec. 3.7.1.1. Chang (*Ping-pien* 24, *k'ao-shih*, pp. 51–52) notes an interesting case in which divination topics were recorded on the fifth plastron, but not on the first, even though they were apparently cracked on the first.

[52] Chang Ping-ch'üan (1957), p. 10; (1960), p. 400.

[53] E.g., *Ping-pien* 12–21; *K'u-fang* 1595 (D). On *Ping-pien* 311 some of the charges are associated with crack 1 only, some with cracks 1 and 2, some with cracks 1 to 4, some with cracks 1 to 5, and some with cracks 1 to 10. The scapula fragment, *Menzies* 2462, is an apparent exception to this generalization, containing number 1 cracks for one topic and number 3 cracks for another.

[54] E.g., *Ping-pien* 34–38 contains two sets of divinations, one divined on chia-ch'en (day 41), the other on yi-mao (day 52); the first plastron (*Ping-pien* 34) contains the number 1 cracks for both sets, the second plastron (*Ping-pien* 35) contains the number 2 cracks for both sets, and so on (see Chang Ping-ch'üan [1957], p. 10; [1960], p. 400; *Ping-pien* 34, *k'ao-shih*, p. 63). Such sequential rigor is particularly noticeable in the period V ten-day divinations; in one case, for example, a set of five scapulas appears to have been reused at ten-day intervals in the same sequence for at least seventy days (*Hsü-ts'un 2.972* [D] [fig. 10]). The three crack numbers still present on the fragment are all number 3; presumably each of the five missing crack numbers was number 3 also. For similar examples, see *Hsü-ts'un* 1.2580; 1.2684; *Yi-chu* 246.

[55] Cf. Gadd (1948), pp. 56–57; Parke and Wormell (1956), pp. 39–40; Oppenheim (1964), pp. 214, 227.

that some of the cracks would be readable.[56] This does not exclude the possibility that, in some divinations at least, each individual crack was numbered so that it could be associated with its own subcharge.[57]

2.6 *Crack Notations*

Once the cracks were formed, they were read, presumably by the diviner or the the king,[58] and the interpretation was then recorded in the form of a crack notation (modern term, *shu-yü* 術語 or *chao-yü* 兆語),[59] usually carved to the right or left of the bottom end of the vertical crack on the same side, right or left, as the transverse crack (fig. 8).[60] That the crack notations, whose graphs were usually smaller than those of their accompanying inscriptions,[61] were on occasion obliterated to make way for the inscribed divination charge indicates that they were carved first.[62] Presumably, the record of crack number (sec 2.4) and crack notation was intended to be read jointly; for example, "crack number four was highly auspicious" (fig. 8).[63] For the various crack notations, generally containing the graph *chi* 吉, "auspicious," and how they varied with time, see sec. 4.3.1.11. Inauspicious crack notations were not recorded.[64]

2.7 *The Prognostication*

After the charge had been proposed, the bone or shell burned, and the crack numbered and read, a formal prognostication (modern term, *chan-tz'u* 占辭) was made and recorded. Although prognostications were carved on both the front and back of plastrons, they generally were limited to the back of scapulas.[65] The standard introductory formula was *wang chan yüeh* 王𡆥曰 (S307.3–311.1), "The king, reading the cracks, said: . . ."[66] These forecasts, which were carved for only a minority of the charges,[67] sometimes merely served as a more elaborate crack notation; for example, *wang chan yüeh chi* 王𡆥曰吉 (S308.2), "The king, reading the cracks, said: 'Auspicious.'" Sometimes the prognostication reiterated the wording of the charge; for example, "The king, reading the cracks, said: 'Auspicious. We will receive this harvest'" (fig. 9). And, in a certain number of cases, the terms of the prognostication were more specific than those of the charge itself; for example, for the bifurcated topic "Fu Hao's childbearing will be good / Fu Hao's childbearing will not perhaps be good" we find, "The king, reading the cracks, said: 'If it be a ting-day childbearing, it will be good. If it be a keng-day childbearing, it will be extremely auspicious. If it be a jen-hsü (day 59) (childbearing), it will be inauspicious'" (fig. 13).[68]

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[56] There is some evidence to support this view. Sets which were cracked more times stood a better chance of being inscribed with crack notations. Of the thirteen extra-large, twenty-crack sets listed in n. 47, twelve (92 percent) contain one or more crack notations; of the twenty medium-large, eleven-to-nineteen crack sets (n. 48), fourteen (70 percent) contain one or more crack notations. By contrast, only 59 percent of the regular ten-crack sets (n. 46) contain crack notations. The function of sets will be considered more fully in *Studies*.

[57] See, for example, sec. 3.7.4.2.

[58] The crack notations were never signed. It is possible that the routine crack notations, which make no mention of the king, were determined by the diviner; the more formal prognostications, almost invariably made by the king (sec. 2.7), may have served to confirm the interpretation reached by his ritual assistants. In this view, prognostication would have been the king's prerogative, but he would have been able to delegate the routine reading of individual cracks.

[59] *Ts'ui-pien* 9, *k'ao-shih*, p. 4; Chang Ping-ch'üan (1952), p. 621; (1957), p. 6.

[60] Cf. Chang Ping-ch'üan (1954), p. 227.

[61] Chang Ping-ch'üan (1967), p. 861.

[62] Chang Ping-ch'üan (1954), p. 227, citing *Ping-pien* 96.25. The fact that a crack number sometimes appears in the midst of the crack notation *pu tsai ming* (?) (ch. 4, n. 134) suggests that crack numbers were engraved before crack notations (Huang P'ei-jung [1975], pp. 3a–b).

[63] Preliminary research indicates that numberless cracks (cf. n. 32) never had crack notations recorded by them, though they might belong to sets in which crack notations were recorded for another, numbered crack (e.g., *Ping-pien* 402).

[64] The graph *hsiung* 凶, the standard *Yi-ching* notation for "inauspicious," does not appear in the Shang oracle-bone inscriptions (cf. ch. 3, n. 89).

This generally describes the situation in period I; for the evolution of the prognosti-

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[65] Cf. Chou Hung-hsiang (1969), p. 37. In what I have referred to as "display inscriptions" (defined in n. 90), the preface, charge, prognostication, and verification were all recorded together on the front of the shell (Keightley [1973a], pp. 10–13; [1975c], pp. 13–14); e.g., *Ping-pien* 57.1; 235.2 (fig. 11); 247.1 (fig. 12); *Ching-hua* 1–6 (S307.3). But in period I at least, the inscription units might also be split in various ways. For example, one of a pair of charges might appear on the front of a shell, the other on the back, as in *Ping-pien* 65.1/66.1; 65.4/66.4; 65.7/66.9; 276.2/277.2. Or the preface and charge (and even verification) might be on the front, with the prognostication on the back, as in *Ping-pien* 8/9; 28.1/29.1; 28.2/29.2; 61.3–4/62.1. See too ch. 4, n. 116. Or, not infrequently, the charge might appear on the front, while the preface, prognostication, and verification would be on the back of the shell, as in *Ping-pien* 153.13/154.2–3; 212.1/213.1–2; 225/226.2 (for these and other examples, see Li Ta-liang [1972], pp. 69–79).

[66] A fuller form, *wang chan pu yüeh* 王𡆥卜曰, occasionally appears (e.g., *Ping-pien* 382.3; *K'u-fang* 1935 [D] [S282.1]); in these cases I take *pu* to be nominal, "The king, reading the cracks, said. . . ." The oracle-bone graph is composed of a *pu* crack over a mouth, placed within a bone, presumably a scapula. The mouth-plus-crack element may have served as phonetic (*GSR* 618), with the bone as signific, the graph depicting "speaking about the crack made in the bone" (cf. *CKWT*, p. 1112); the correctness of this view is supported by the fact that the *yüeh*, essentially redundant, might on occasion be omitted, as in *Ping-pien* 235.2 (fig. 11). The graph is thought to be ancestor to *chan* 占, "prognosticate," which in later times lost its pyromantic connotations and bone signific. (The form does appear occasionally in the RFG inscriptions [S506.1], though its meaning is not always certain.) There is no support for the suggestion of Hopkins (1938), p. 416, given currency by its appearance in Soothill (1951), pp. 141–142, that *wang* in this formula referred to the dead kings.

[67] We cannot tell whether prognostications were made in every case and recorded in only a few or whether they were made only in those few cases for which they were recorded. Certain divination topics, such as those concerned with the routine ritual schedule, presumably required no formal prognostication (or verification), though on this point, see ch. 4, n. 99; the crack notation sufficed. For other topics, it is difficult to determine what percentage of charges was accompanied by prognostications (or verifications); this is because a charge carved ten (five positive, five negative) times might require the recording of only one prognostication (or verification). A ratio of ten charges to one prognostication (or verification), therefore, would indicate that 100 percent (and not 10 percent) of the charges had been prognosticated. These considerations seriously qualify the preliminary discussion in Keightley (1973a), pp. 3–6.

[68] *Ping-pien* 248.7. See too the prognostications on *Ping-pien* 17 (fig. 16) and 19 (sec. 3.7.1.2). The cases in which the prognostication is more specific than the charge provide a significant clue to the way the cracks were interpreted (sec. 3.7.4); the matter will be discussed fully in *Studies*.

cations, see sec. 4.3.1.8. The prognostication in any period was usually made by the king; it was never made by—or, more accurately, the record never attributes it to—one of the court diviners. They divined, but the king prognosticated. The only other prognosticators who appear in the record are certain diviners of the Royal Family group.[69]

2.7.1 *Temporal Range*

Like the charges (sec. 2.3.2), prognostications tended to be concerned with the immediate future and the coming ten-day week.[70] But prognostications in period I occasionally lunged far into the future in surprisingly specific ways. For example, in the prognostication for the birth divination cited above, it was foretold that the birth would be inauspicious if it took place on jen-hsü, thirty-eight days away from the day of divination.[71] A prognostication about the arrival of a Shang ally or tributary may have been made (or, as in all these cases, may have been claimed to have been made) fifty-eight days in advance.[72] This ability to augur with precision about events one or two months (or even longer; cf. sec. 2.8.1) in the future was undoubtedly one of the skills that legitimized the king's authority and that the king took care to stress.[73]

2.8 *The Verification*

A verification sentence (modern term, *yen-tz'u* 驗辭), which recorded what actually happened after the prognostication had been made, was also carved in a small number of cases into the bone or shell.[74] As with the prognostication, the verification might appear on the front or back of a plastron, but it was generally carved on the back of scapulas.[75] Thus a full divination record with all inscription units present (fig. 11) would be of the form:

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[69] The diviners 亢 and Hsieh 叶 prognosticated (*Ch'ien-pien* 4.42.2 [S318.2]; 6.39.1; *Ching-chin* 1599; 1601 [all S311.1]; *Hsü-pien* 5.7.4 [S506.1]; *Wai-pien* 240 [S13.3]; *Yi-ts'un* 586 [S139.2, but wrongly recorded as 584]; *Yin-hsü* 574 [D] [S311.1]). These few prognostications, written in small script, usually containing just one word, *chi*, "auspicious," and frequently omitting the *chan*, may be regarded as different in kind from the boldly written and, on occasion, remarkably precise prognostications of the period I court divinations.

[70] E.g., *Ching-hua* 1–6 (S307.3).

[71] *Ping-pien* 248.7 (fig. 13).

[72] *Yi-pien* 6668/6669 (S240.1). Jao (1961), p. 971, n. 2, concerned by the long interval, suggests that the prognostication was made two days *before* the charge was divined!

[73] For a preliminary study, see Keightley (1975c), pp. 11–17.

[74] For the difficulties involved in estimating the ratio of charges, prognostications, and verifications, see n. 67.

[75] See n. 65.

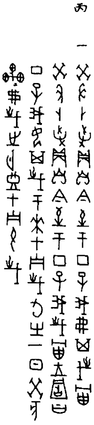
PAIR OF COMPLEMENTARY CHARGES

	positive, left side (*Ping-pien* 235.2)	negative, right side (*Ping-pien* 235.1)
(Preface:)	Crack-making on chi-mao (day 16), Ch'üeh divined:	Crack-making on chi-mao (day 16), Ch'üeh divined:
(Charge:)	"It will rain."	"It will not perhaps rain."
(Prognostication:)	The king, reading the cracks (said): "It will rain; it will be a jen day."	
(Verification:)	On jen-wu (day 19) it really did rain.	

In period I, verifications (and prognostications) might provide considerable detail; for example:

PAIR OF COMPLEMENTARY CHARGES

	negative, left side (*Ping-pien* 1.4)	positive, right side (*Ping-pien* 1.3)
(Preface:)	Crack-making on kuei-ch'ou (day 50), Cheng divined:	Crack-making on kuei-ch'ou (day 50), Cheng divined:
(Charge:)	"From today to ting-ssu (day 54) we will not perhaps harm the Chou 胄."	"From today to ting-ssu (day 54) we will harm the Chou 胄."
(Prognostication:)		The king, reading the cracks, said: "(Down to) ting-ssu (day 54) we should not[76] perhaps harm (them); on the coming chia-tzu (day 1) we will harm (them)."
(Verification:)		On the eleventh day,[77] kuei-hai (day 60), (our) chariots[78] did not harm (them); in the *t'ou* period[79] between that evening and chia-tzu (day 1), (we) really harmed (them).



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[76] On the possible functions of *wu* 毋, see Takashima (1973), pp. 91–114. Cf. ch. 3, n. 63. On *ch'i* 其, see ch. 3, n. 41.

[77] Ordinal day counts in period I inscriptions run inclusively from the day of divination. It is possible that RFG counts excluded the day of divination, but the evidence is uncertain. The issue will be discussed in *Studies*.

[78] Chang Ping-ch'üan (*Ping-pien* 1, *k'ao-shih*, p. 6) takes *ch'e* 車 as a name; Takashima (1973), p. 110, takes it as a chariot unit. Either interpretation is possible.

[79] The graph 豆 (which, for the sake of convenience, I romanize as *t'ou* 豆 = 鋀 [?], a vessel without a cover [*CKWT*, p. 4070]) appears in two different contexts in the inscriptions: (1) as a verb of sacrifice (S403.1); see Chang Tsung-tung (1970), p. 71, n. 5; Serruys (1974), p. 70; (2) as a link between two *kan-chih* dates which are always consecutive, the formula being *chia-tzu (hsi) t'ou yi-ch'ou* 甲子(夕)豆乙丑 (S402.3–4); see *Ping-pien* 96, *k'ao-shih*, pp. 135–137. In this second case, *t'ou* apparently referred to the nighttime no-man's-land between two cyclical-day dates, and that is the usage employed here. For a preliminary analysis, see Keightley (1975), pp. 142–144; a fuller discussion will be provided in *Studies*.

Or, for still more detail: (*Ching-hua* 2 [fig. 14], left side [S401.4]):

(PREFACE:) Crack-making on kuei-ssu (day 30), Ch'üeh divined:

(CHARGE:) "In the (next) ten days there will be no disaster."

(PROGNOSTICATION:) The king, reading the cracks, said: "There will be harm; there will perhaps be the coming of alarming news."[80]

(VERIFICATION:) When it came to the fifth day,[81] ting-yu (day 34), there really was the coming of alarming news from the west. Chih Kuo,[82] reporting, said: "The T'u-fang are besieging in our eastern borders and have harmed two settlements." The Kung(?)-fang also raided the fields of our western borders.

Verifications frequently included the affirming word *yün* 允, "really, truly," and in most cases the recorded verification confirmed the accuracy of the prognostication. Verifications validated the divination process; they rarely, if ever, confounded it.[83] On the changing nature of the verifications with time, see sec. 4.3.1.9.

2.8.1 *Temporal Range*

Most verifications record events that took place within several days of the divination, as the following examples show: (1) a verification records that the king fell from his chariot one day after harm had been forecast; (2) the capture of rhinoceroses (?), pigs, tigers, and deer was recorded two days after a divination about hunting by fire; (3) rainfall was recorded three days after its prognostication; (4) enemy incursions were recorded five to seven days after harm and misfortune had been forecast. As with charges and prognostications, the usual range of concern was within the ten-day week, but longer periods might be involved. In one case (5) the verification records the arrival of tribute (?) twelve days after the divination; in another case (6) the birth that had been forecast occurred thirty-one days after the divination; in yet another case (7) an individual's death (?)

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[80] "Disasters," "alarming news," and "harm" are functional translations (sec. 3.5) of (*a*) 𡆥, (*b*) 艱, and (*c*) 求, respectively. The Shang apparently envisioned a hierarchy of disaster words which were general or specific, potential or actual. According to Mickel (1976), pp. 79–94, 100–110, 240—who notes the existence of eighteen different disaster graphs from period I—form *a* was the most generalized term, used vaguely of any disaster that might occur or be forecast in the future; form *c*, by contrast, referred to disasters that had been forecast or had already occurred. For the functional translation, "alarming news," for form *b*, cf. Chow Tse-tsung (1968), p. 168, n. 65; Mickel (1976), pp. 174–178.

[81] See n. 77.

[82] See ch. 3, n. 104.

[83] For the implications of this point, see Keightley (1975c), pp. 13–15. The prognostication was at times unsupported by the verification, e.g., *Ping-pien* 368/369; *Yi-pien* 6419/6420 (depending on the meaning of 蒙 and, since the rubbing is hard to decipher, following the reading of Li Yen [1969], p. 195); *Cho-ts'un* 34 (S281.4 = *Chui-hsin* 530); in these cases, the thing forecast happened, but not strictly in accordance with the terms of the prognostication. I know of only two cases where the recorded prognostication may have been contradicted by the verification: *Yi-pien* 4130 (S245.4) (if, with Jao [1957/58], p. 18, 喪 令 means "lose life"); *Hsü-ts'un* 2.76 (D) (S233.1) (if 蒙 means "foggy").

followed fifty-seven and twenty-seven days after his sickness had been prognosticated; other verifications (8) involve an interval of a hundred or more days; and in a final case (9) the onset of sickness appears to have taken place 175 (?) days after the divination.[84] In this last case, as in the others, the oracle bone may have been kept on file, with the verification (and perhaps the prognostication and charge as well)[85] uncarved, awaiting the final confirmation, or confutation, of the royal forecast.

2.9 *Recording the Inscriptions*

Having dealt first with the form and content of the inscriptions, I want to turn now to the mechanics of oracular record keeping. Contrary to what some scholars have supposed,[86] the engravers did not carve the charge into the bone or shell before the cracking took place, but after.[87] This suggests that the scapulimantic and plastromantic inscriptions were not simply regarded as prayers or magical letters forwarded to the spirits. The writing recorded not what was about to be divined but what had been. Its purposes, therefore, were at least partly historical and bureaucratic—to identify the topics, forecasts, and results for which the cracks had been formed.[88]

How soon after the cracks were burned the divination record was carved we cannot

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[84] (1) *Ching-hua* 1 (S307.3); cf. Shirakawa (1972), p. 26; (2) *Ping-pien* 102.1; (3) *Ping-pien* 154.3; 235.2 (fig. 11); (4) *Ching-hua* 2 (S401.4; translated in sec. 2.8); (5) *Yi-chu* 620 (S91.1); (6) *Ping-pien* 247.1–2 (fig. 12); (7) *Yi-pien* 4130; 5397 (S245.4); it is not certain, however, that Jao (1957/58), p. 18, is correct in taking the second inscription—which certainly does involve a verification fifty-seven days later—as referring to the death (?) of the same person; (8) *Pu-tz'u* 579 and other inscriptions at S467.2; (9) *T'ieh-yün* 5.3 (S243.4); various reconstructions of certain of the cyclical dates are possible (e.g., *T'ung-tsuan* 530, *k'ao-shih*, p. 116b; Yen Yi-p'ing [1952], p. 296), but it seems that an interval of 170-odd days was involved between divination (or prognostication) and verification.

[85] Cf. n. 90.

[86] E.g., Britton (1940), pp. 7–8; Thompson (1969), p. 34; Wilkinson (1973), p. 60.

[87] Ch'en Meng-chia (1956), p. 13; Chang Ping-ch'üan (1967), p. 866. That the inscriptions were generally made after the cracks is shown by the fact that in only a few instances is a crack straddled by a graph written across it, a situation known as *fan-chao* 犯兆 (sec. 2.4); for examples, see *Ping-pien* 1; 96 (esp. 96.25); 155; 159; 243; 284; 502; *Yi-pien* 867. Had the cracks not been formed until after the engravers had carved the graphs, we would expect many more cases of *fan-chao*; it would have been extremely tedious, if not impossible, for the carver to keep turning the bone or shell over to estimate on the basis of the hollow locations on the back the places on the front where he should not write for fear that cracks would later bisect the graph. That the inscriptions were carved after the cracks is also shown by the following considerations. If we agree that the crack numbers (sec. 2.4) were carved after the diviners had made the cracks (it is hardly likely that the crack numbers would have been carved before) and if we agree (on the basis of crack numbers being erased to make way for inscriptions; see n. 39) that the inscriptions were carved after the crack numbers, then it follows that the inscriptions must have been carved after the cracks were made.

[88] No rigorous study has been made of which cracks on a shell were associated with which inscriptions; there is no way to be certain, for example, that the *Ping-pien k'ao-shih* assigns the right cracks to the right inscriptions in every case. Quite probably, the Shang diviners observed no very strict rules themselves, though proximity must have been the governing factor and boundary lines (sec. 2.11) were, on occasion, carved to avoid confusion. On this point, cf. Chang Ping-ch'üan (1956), p. 239; see too sec. 3.7.2.

tell.[89] And it is not certain whether all the units of an inscription were carved at the same time or whether the various units were inscribed separately, with the preface and charge being inscribed first, for example, the prognostication being inscribed after the cracks had been read, and the verification being inscribed only after events had taken their course.[90] When the diviners used a bone or shell over several days, it is probable that the divination inscriptions of the first day were engraved before the subsequent divinations were made.[91] But practice may have varied on all these points, and further research is needed.

2.9.1 *Writing Brush*

A small number of the inscriptions were apparently written first with a brush dipped in ink and were then incised; these graphs are generally large and crude in style, and are found on the back of scapulas or plastrons.[92] Some marginal notations were also written on the bridge with a brush.[93] The brush strokes generally followed the same direction and sequence as those used by traditional and modern calligraphers.[94] The writing brush was apparently pliable and springy, and since its strokes were thicker than those subsequently carved by the knife, traces of the extra ink remain in certain cases.[95] We also find instances

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[89] I do not find persuasive the arguments of Hu Hou-hsüan (1939), pp. 412–413, 425, which attempt to show, on the basis of such matters as omissions in the record, that the charges were not necessarily incised on the same day. His evidence may be explained by intentional abbreviation of the record, subsequent fragmentation of the bones, etc., rather than by the forgetfulness he imputes to the recorders.

[90] The argument that the prognostications and verifications were inscribed significantly later than the charges (e.g., Britton [1940], p. 8; Tung [1954b], p. 359; Li Ta-liang [1972], p. 109) depends either upon the claim that this would have been logical or that the writing style of these units differs from that of the rest of the inscription. But what is logical to us may not have been logical to the Shang. And it is frequently hard to establish the existence of a significant change in the writing style (e.g., in *Ping-pien* 32.27; 235.2; 251.2; 334.3, are the graphs of the prognostication larger, or smaller, than those of the charge?); and even when the change is evident with the start of the verification (as in *Ping-pien* 284.4), we cannot be certain that the smaller size and slightly different angle with which the graphs of the verification were written were not signs of lack of space rather than of a later record. On the other hand, certain "display inscriptions" appear to have been written all at one time. As I define them, the essential characteristics of these display inscriptions are: (1) bold, large calligraphy; (2) the prognostication and verification written as a single, continuous unit, and usually placed immediately next to the charge; (3) the verification, frequently detailed, confirms the accuracy of the prognostication (Keightley [1975c], p. 13). For typical display inscriptions, see *Ping-pien* 1.3 (translated in sec. 2.8); 57.1; 247 (fig. 12); *Ching-hua* 2 (S401.4; translated in sec. 2.8); *K'u-fang* 1595 (D) (S301.4–302.1); *T'ieh-yün* 5.3 (S243.4; discussed in n. 84 above). Objective criteria need to be established for determining what was, and was not, written at one time; it is possible, for example, that microscopic studies of engraving strokes (cf. Chou Hung-hsiang [1967/68]) may eventually tell us if, in such cases, the same or different knife and hand carved the whole inscription.

[91] See ch. 3, n. 113, for evidence; cf. n. 140.

[92] Ch'en Meng-chia (1956), p. 14; Chang Ping-ch'üan (1954), p. 231; (1967), p. 866; Chou Hung-hsiang (1967/68), p. 10. See, for example, *Yi-pien* 6423 (after Tung [1948a], p. 124); *KK* (1975.1), p. 39, citing H103: 62.

[93] Ch'en Meng-chia (1956), p. 13. *Ching-chin* 2, a plastron back, has a three-character marginal notation written in red, but not carved (Yen Yi-p'ing [1973], p. 2a).

[94] Tung (1948a), p. 127, and accompanying Chinese text; (1949a), p. 264.

[95] E.g., *Ping-pien* 66.3, 5, 7. On the nature of early writing materials in general, see Su Ying-hui (1957).

in which inscriptions were first written by brush but, due presumably to clerical oversight or to the fact that the writing was only for practice, were only partially carved, if at all.[96] The ink, originally red (and perhaps black), has with age turned brown, or black with yellow and brown tinges, or light yellow.[97]

2.9.2 *Engraving Knife*

It appears that the great majority of the inscriptions were carved directly into the surface of the bone, with no prior brush-written characters to copy.[98] Many practice inscriptions have been found,[99] and Kuo Mo-jo has suggested that since freehand carving would have taken considerable practice, the numerous *kan-chih* day tables which we find engraved on bone should be regarded as "exercise sheets."[100]

It is generally thought that the inscriptions were carved with engraving knives;[101] they were presumably made of bronze, though some may have been of jade. No Shang knives have yet been excavated which can be said, with certainty, to have been used for carving graphs on bone and shell.[102] We are still not sure, in fact, how the Shang, with their comparatively primitive blades, were routinely able to cut characters into the hard bone and shell that were regularly and neatly formed and, as in period V (for example, fig. 10), small and remarkably finely shaped.[103]

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[96] E.g., *Chia-pien* 870; 2636; 2940; *Ping-pien* 66.1, 2, 4, 5, 6. Tung (1965), plates 40–42 (the last originally published in Tung [1933], facing p. 418), gives other photographs of brush-written characters on bone. Such characters do not reproduce in rubbings; cf., for example, the rubbing and photograph provided for *Ping-pien* 27.2, 4, 5.

[97] Chu (1935), ch. 6, p. 17a; Ch'en Meng-chia (1956), p. 14.

[98] Ch'en Meng-chia (1956), p. 15, gives the following reasons for rejecting the theory (e.g., Tung [1949a], p. 263) that the carved graphs required brush-written "templates": (1) the front of the plastron was too slick to take ink readily; (2) since the brush-written graphs are larger and cruder than the carved ones and since they are also frequently upside down (cf. n. 111 below), they were clearly not templates that had not been carved through an oversight; (3) some engraved graphs were so small that the engraver could not have followed brush strokes accurately; (4) the number of commonly used graphs was not large [cf. ch. 3, n. 7]; there was thus no necessity for templates to be provided. Ch'en's third reason contradicts the view of Kaizuka and Itō (1953), pp. 74, 76, that the fine, small calligraphy of the Tzu group (sec. 2.2.1.1) and period V inscriptions was first written with a brush; their view is weakened by Ch'en's second point, i.e., the size and crudity of the brush-written graphs we know (as in *Ping-pien* 66.1).

[99] The following types of practice inscription, identified by crudity of form, lack of sense, or lack of connection with divinatory cracks (criteria, incidentally, that may also be used to identify fake inscriptions; see sec. 5.4), may be noted: (1) practice inscriptions carved on unprepared or unburned bone (e.g., *KK* [1975.1], p. 45, citing H99:3); (2) practice inscriptions involving senseless repetition of graphs (e.g., *Chia-pien* 2875; *T'ai-ta* 2, 7; see Liu Yüan-lin [1974], p. 121, for another case, of uncertain provenance); (3) practice graphs accompanied by doodles of animal figures (e.g., *Chia-pien* 2336; 2422; see Hsü Chung-shu [1931], p. 528, for a drawing); (4) practice graphs cut into a bone already used for regular inscriptions (e.g., *Chia-pien* 2407.3; *Chia-t'u* 125/126); (5) practice graphs cut over old inscriptions that had been erased (e.g., *KK* [1975.1], pp. 38–39, citing H85:127); (6) *kan-chih* tables (n. 100).

[100] Kuo detects in one fragment a row of graphs written by the teacher; the other rows are written by his students, whose better efforts were due to the teacher's guiding hand (*Ts'ui-pien* 1468, *k'ao-shih*, p. 196b; cf. Kuo Mo-jo [1972a], pp. 4–5). For representative *kan-chih* tables, see *Chia-pien* 2599; *KK* (1975.1), pp. 38–39, citing H85:127; *Chui-hsin* 373–376; 415; 433; 434; 475; 679; 682; *Hou-pien* 2.1.5 (with many horizontal strokes missing; see sec. 2.9.3); *US* 1; 40 (Chou Hung-hsiang [1976], pp. 7, 8).

[101] Chang Ping-ch'üan (1954), p. 231; Ch'en Meng-chia (1956), p. 13.

2.9.3 *Engravers*

The writing style associated with one diviner might vary greatly,[104] yet the writing style associated with different diviners was frequently identical;[105] and one diviner's

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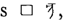
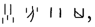
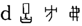
[102] Chou Hung-hsiang (1967/68), on the basis of classical descriptions, other Shang knives, and a study of the grooves left in the Shang bones, reconstructs four kinds of blades and suggests the ways in which the engraving knife may have been held. See too Hsü Chin-hsiung (1974), p. 283, n. 56. A bronze knife, similar to that used by modern engravers, was apparently found in 1929 with the large plastrons excavated from the Ta-lien-k'eng 大連坑 (hereafter TLK) (Matsumaru [1959], p. 8, citing an unspecified report of Tung). Kuo Pao-chün (1951), pp. 26–27, plate 9.4, reported a jade knife, excavated from a Wu-kuan-ts'un grave in 1950, that was still sharp enough to cut strokes on turtle shell (the knife is also reproduced by Itō [1958], fig. 132). For other references to Shang engraving knives, see: Matsumaru (1959), p. 8, who, like Britton (1940), p. 3, argues for a blade with a V-shaped cross-section; Watson (1963), p. 42. Tung (1965), plate 39, provides an enlarged photograph of the grooves forming one graph on *Chui-ho* 36 (Tung's plate 38); a long thin groove extending from the graph may indicate where the knife slipped. As Chou Hung-hsiang (1967/68), p. 18, points out, it is hard to cut graphs on bone or shell today, even with a modern steel blade; it would have been far harder with a jade blade. Britton (loc. cit.) put it well: "The osteoglyphs of the Ti Yi and Ti Hsin reigns [i.e., period V] are the despair of present-day imitators. One marvels at the strength and control of wrist and fingers which the writers must have developed." Barnard (1960a), p. 482, found that "a gentle scraping action rather than deliberate cutting seems to be the more reliable way to achieve clear-cut strokes," but, concerned with the way forgeries are made, he was working with old bone from a Shang site, not, as the Shang diviners were, with fresh bone. Chou Hung-hsiang (1976), p. 12, has noted one piece, *US* 486, at Harvard University, with "inscriptions engraved by a gouge rather than a knife."

[103] Kuo Mo-jo (1972a), p. 4, has suggested that by analogy with ivory working, the bone must have been softened in an acid bath; but I know of no evidence that the Shang used acid. Chou Hung-hsiang (conversation, 10 September 1970) proposes that the Shang may have softened the bone or shell by boiling it.

[104] Jao (1959), pp. 1188–1189, lists many cases of varied calligraphic styles associated with single diviners; cf. Barnard (1960a), p. 485. In period I, to cite a few examples, we find the divinations of Cheng recorded in both large, copperplate (*Ping-pien 1.1–4*) and medium-sized calligraphy (*Ping-pien 3.1–2*; *5.1–2*). The divinations of Ch'üeh were likewise recorded in large (*Ping-pien 8* [fig. 8]), medium (*Ping-pien 2.1–2*; *12*; *14*; *16* [fig. 15]; *18*; *20.3–6*), and small (*Ping-pien 1.9–18*; *2*; *3.21*) calligraphy. In period II, the calligraphy of diviner Yi 吴's inscriptions might be either medium (*Ch'ien-pien 6.21.2*; *Jimbun 1588*) or small (*Hou-pien 2.13.2*; *2.24.4*); the diviner Chung 中's inscriptions (S570–571) also varied in style; on the other hand, the inscriptions of the diviner Hsing 行 (S567–568) were invariably small (on the meaning of the terms "copperplate," "large," "medium," etc., see sec. 4.3.1.3). For epigraphic variations in the names of particular diviners, see, for example, Ch'ü Wan-li (1960a), p. 189, and Li Yen (1966/67) on the diviner Ho 何 (cf. Cheng Te-k'un [1971], p. 146; Barnard [1973], p. 24); Yen Yi-p'ing (1961), p. 506, on the diviners and Wei 韋; Tung (1936), pp. 107–113, on the diviner 狄 (cf. Ch'en Meng-chia [1956], p. 16).

[105] The engraving style of certain period I diviners like Cheng, Ch'üeh, Hsüan, and Pin is so similar that it is reasonable to assume they were the product of the same hand. Indeed, it is the similarity of style for diviner groups that permits calligraphy and epigraphy to be used as a dating criterion (secs. 4.3.1.3 and 4.3.1.4). For a good example of identical writing style used for the inscriptions of two RFG diviners, see *Ping-pien* 612, *k'ao-shih*, pp. 94–95.

inscriptions and even the form of his name might be written differently on the same plastron.[106] These facts indicate that the inscriptions were not engraved by the diviners themselves, but by special engravers,[107] presumably those who were being trained to write the *kan-chih* tables referred to in sec. 2.9.2. The hypothesis of Matsumaru that the records were incised by a comparatively small number of engravers—reduced perhaps to only one man in period V, when the calligraphy is remarkably uniform—accords with the evidence.[108]

At least some of the carving appears to have been performed on a mass-production basis in the sense that the graphs were not all carved one at a time. In these cases, the engraver first cut all the vertical and sloping strokes for every graph on the bone and then rotated the bone to carve all the horizontal strokes. Thus, the graphs *ting-hai* 丁亥, whose full oracle-bone form was , would first be carved as .[109] And the carved strokes , gibberish in themselves, may be completed to read .[110] In this way, the engraver could have plied his knife in one general axis and would have needed to rotate the bone only once, thus saving time. This method of carving undoubtedly contributed to the not infrequent errors, erasures, and corrections found in the inscriptions.[111]

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[106] *Ping-pien* 1.1; 1.3; and 1.18 all record divinations by the diviner Cheng over a fourteen-day period; the engraving style of each is markedly different. Similarly, the divinations of the diviner Ch'üeh appear in two different styles on the *Ping-pien* 12–21 set (sec. 3.7). *Chia-t'u* 113 records two divinations by Ho, made ten days apart; the epigraphy differs markedly for a number of the graphs. For other instances, see the sources cited in n. 104. On at least one occasion, the engraver changed in mid-inscription; the *k'ao-shih* to *Chia-pien* 2779 notes that the last five graphs of the charge were cut by a different hand.

[107] Ch'en Meng-chia (1956), p. 16, commenting on Tung (1936), pp. 107–113; see too Barnard (1973), p. 26, n. 8.

[108] Matsumaru (1959), p. 8. An estimate of the number of bones and shells engraved per day (appendix 3, sec. 4) supports the view that the engravers could have been few in number. The existence of individual engravers, whose careers were not necessarily coterminous with those of the diviners or diviner groups, bears on the criteria used for relative dating (secs. 4.3.1.3 and 4.3.1.4).

[109] Tung (1929), p. 75.

[110] *Hou-pien* 1.16.6 (following the reconstruction of Ikeda [1964]; for two earlier reconstructions that differ, see Yeh Yü-sen [1929], p. 10a, and Tung [1933], p. 418). By the nature of the evidence we only know that graphs were carved in this way when strokes were omitted. Nevertheless, the frequent absence of horizontal strokes suggests that—despite the considerable experience that must have been required to engrave long inscriptions in first one dimension and then the other—many inscriptions were carved in this way. There are, for example, numerous examples of oracle bones in which a series of horizontal strokes have not been carved. Chou Hung-hsiang (1976), p. 11, cites *USB* 416, a scapula at Columbia University, in which a series of horizontal strokes are missing in the right central section of the bone. *Hou-pien* 2.1.5 is a notable case in which the graphs in the first two right-hand columns were completely carved, but the horizontal strokes for the graphs in the next six columns are, with one exception, missing (cf. Kuo Mo-jo [1972a], p. 4). For other examples, see *Chia-pien* 221, *k'ao-shih*, p. 35; *Ping-pien* 18.7; 30.4; 34.3–4; 37.1, 3, 4 (after Chang Ping-ch'üan [1956], p. 255); *Yi-pien* 3389.5; *Chien-shou* 46.14 (after Tung [1933], p. 418); Tung (1936), p. 114; Ch'en Meng-chia (1956), p. 13.

[111] The following types of errors may be noted (the list of categories is taken from Hu Hou-hsüan [1939], pp. 401–421, and Ch'ü Wan-li [1961], p. 5, who give numerous examples—not all of which were necessarily the Shang errors these authors take them to be): (1) graphs omitted (e.g., *Chia-t'u* 80.17; but many cases may represent intentional abbreviation; cf. sec. 3.7.1.1); (2) surplus graphs (e.g., *Chia-pien* 756.2); (3) graphs inserted (e.g., *Chia-pien* 27); (4) wrong graphs, uncorrected (e.g., *Chia-pien* 476.1; 2511; *Ping-pien* 73.6); (5) wrong graphs, corrected (e.g., *Chia-pien* 2214); (6) strokes missing (see n. 110); (7) graphs upside down (e.g., *Chia-pien* 1510; see too Yen

2.9.4 *Inscription Placement*

The engravers generally carved the oracle inscriptions on the front of the scapulas and plastrons, placing them in crack-free areas or fitting them around the cracks. As a rule, the inscriptions appear to have been carved above, or to the side of, their *pu* cracks and on the side of the crack which lacked the transverse branch (for example, fig. 8); but the modern scholar cannot always be certain which inscription referred to which crack(s).[112] Inscriptions were rarely carved on the back of the bones or shells, except in the reign of Wu Ting when, as we have seen, units of the same inscription might appear on both the front and back of a shell.[113] The significance of this is uncertain, but it reminds us that the context of an inscription, especially during period I, involves both the back and front of the bone or shell on which it appears.[114]

The individual charges on both scapulas and plastrons were generally carved in vertical columns, and were read downward like traditional Chinese texts.[115] In nonoracular Shang writing, the columns normally moved from right to left,[116] but the natural symmetry of the plastrons (and scapula pairs)[117] encouraged the oracle-bone engravers to balance the inscriptions in antipodal fashion so that if one column moved from right to left, the matching column would move from left to right.

On turtle shells, the columns might be read moving from the center of the plastron toward the edge, or from the edge toward the center; pairs were usually of this form, being carved so that the inscriptions either moved toward, or away from, each other, like mirror reflections (fig. 8).[118] Charges were occasionally written as single horizontal lines;[119] it was also possible for a horizontal line of graphs to continue as a vertical column or vice versa,[120] or even for an inscription to shift from vertical columns to a horizontal column and back to a vertical column.[121] Some of these patterns tended to be associated with specific plastron areas.[122]

Yi-p'ing [1959], pp. 230, 233; but some graphic inversions were clearly intentional [see ch. 5, n. 34]). For crack numbers, wrongly written and corrected, see n. 41. See too Chou Hung-hsiang (1970), pp. 49–52, on the question of erasing without reengraving and reengraving without erasing; for a particularly interesting case of multiple erasures, see Kuo Mo-jo (1972), p. 3; Ch'iu (1972), p. 43.

[112] See n. 88.

[113] See n. 65. For the meaning of "front" and "back," see ch. 1, n. 46.

[114] Tung (1945), pt. 2, ch. 9, p. 1b (cf. Li Ta-liang [1972], p. 47), suggests that some inscriptions ran over to the back because of the lack of crack-free space on the front.

[115] For the meaning of "top" and "bottom," see ch. 1. n. 46. There are a few curious exceptions to the standard orientation. For example, the front of *Chia-pien* 2902/2903 has to be read with the socket at the bottom, but the back must be read with the socket at the top (this scapula is reproduced by Umehara [1964], plate 23). Some of the inscriptions on *Yi-pien* 407, a half carapace, are upside down (Tung [1962]). Kuo Pao-chün (1951), plate 41.1–2, reproduces a scapula in which the socket has to be placed at the right in order for the writing to be read.

[116] Tung (1933), pp. 420–421; (1951a), p. 394.

[117] Cf. n. 45.

[118] *Ping-pien* 69.1–2; 354.1–2.

[119] *Yi-pien* 5408; 6385.

[120] *Yi-pien* 7456; *Ping-pien* 7.1–2.

[121] *Yi-pien* 7767 (top of the right hyoplastron). On placement in general, cf. Serruys (1974), pp. 16–17, who diagrams the various possibilities. Li Ta-liang (1972), pp. 31–52, provides an exhaustive account of the various writing patterns on shell. For the symbols ⌋ or ⌊, see sec. 5.6.

[122] Chou Hung-hsiang (1969), pp. 12–36, has made an exhaustive study of inscription patterns

Scapulas lacked the natural center line of plastrons. Graphs were generally written in vertical columns; they were read downward, and the columns might move from the center out toward the two edges or from the edges toward the center.[123] Generally, the engravers cut the inscriptions into the region of the bone near the socket and along the two sides, frequently placing them near the right edge of a left scapula and vice versa.[124]

The direction of the cracks influenced the direction of the inscription. In general, the inscriptions ran against the cracks. That is, if the *pu* crack faced right, then the columns

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on various parts of the shell, both front and back. He points out, for example, that in the region of the epiplastron and entoplastron (fig. 3), more pairs are inscribed running from the outside edge toward the center (e.g., *Ping-pien* 5.1–2; 7.1–2; 12.1–2; 14.1–2; *Yi-pien* 6385) rather than vice versa (e.g., *Ping-pien* 276.3–4). On the basis of the reconstituted *Ping-pien* plastrons, I would propose that ideally (as in *Ping-pien* 1; 3; 5; 22; 34; 36; 37; 38; 43; 47, etc.) multicolumn inscriptions on the epiplastron were expected to run from the outside toward the center; those on the entoplastron were to run from the center toward the outside; on the hypoplastron and hyoplastron they were expected to run from the center toward the outside; and on the xiphiplastron, those near the edge were expected to run toward the center, while those near the spine were expected to run toward the edge. Or, to put the rule less technically, on the top and bottom sections of the plastron, those inscriptions placed near the edge ran toward the center, those placed near the center ran toward the edge; in the middle of the plastron, inscriptions all ran toward the edge. Fig. 17 illustrates this; for examples, see *Ping-pien* 7.1–2, 3–4; 12.1–2, 3–4; 14.1–2, 3–4, 5–6; 16.1–2, 3–4, 5–6, 7–8. But although this pattern may have been the model, the diviner did not always follow it; e.g., *Chia-pien* 221; 222 (see the *k'ao-shih*); *Ping-pien* 10.1–2; 29.1–2; 30.2; 41.16–17; 49.7; 276.1–2, 3–4, 5–6; cf. *Ping-pien* 611, *k'ao-shih*, p. 95.

[123] It was frequently the case that columns on a left scapula ran to the right and vice versa; e.g., Tung (1945), pt. 2, ch. 5, pp. 20a–21b (period V); ch. 6, pp. 6b, 7b (period II); ch. 10, p. 2b (period II); *Chia-t'u* 110; 111; 124 (all period III). But columns on left scapulas might also run to the left and those on right scapulas to the right; e.g., Tung (1945), pt. 2, ch. 6, p. 5a (period II); ch. 7, p. 2a (period V); *Chia-t'u* 199 (period I). And in some cases the columns on one scapula might run in both directions; e.g., *K'u fang 1595* (D) (period I), see Tung (1945), pt. 2, ch. 3, p. 28a; *Chia-t'u 125* (period III); *198* (period I).

[124] Chou Hung-hsiang (1969), pp. 37–52, discusses the placement of inscription pairs on scapulas; on pp. 52–57, he documents the similarity of pattern employed on both bone and shell. The right and left placement of paired charges requires more study. Preliminary research suggests that in cases in which the diviner was merely seeking information and had no preference among the responses he might obtain, the charge in the positive mode was generally placed on the right side of the shell, the charge in the negative mode on the left side, e.g., *Ping-pien* 28; 30. When one response was preferred, however, the desired alternative, whether couched in the positive or negative mode, appears to have been placed on the right, the undesired alternative on the left (Shirakawa [1948], p. 36; Chang Ping-ch'üan [1956], pp. 241–243; cf. Takashima [1973], p. 182; Serruys [1974], p. 25). Thus, the charge 子网其㞢疾, "Tzu Shang (?) will perhaps have sickness" (*Chui-ho* 292 [S449.1]), was expressed in the positive mode; but since Tzu Shang was an ally and perhaps a member of the royal family, his possible sickness was undesirable, and the inscription was carved on the left side of the shell. The remains of the wished-for, negative charge 子[网]亡疾, "Tzu [Shang] will not have sickness," can be discerned on the right side of the plastron. The validity of this interpretation is supported by the "weakening particle" *ch'i* 其, which I translate as "perhaps" (see ch. 3, n. 41), on the undesirable, left side. This hypothesis about right and left placement, which is generally, though not invariably, supported by the evidence (see, e.g., *Ping-pien* 1.3–4 [translated in sec. 2.8]; 8 [fig. 8]; 247 [fig. 12]; *Yi-pien* 3287 [S433.1]; 4130 [S245.4]), depends, of course, on the unverifiable assumption that we can tell what the Shang king was wishing for; for a case in which the hypothesis fails, consider *Ping-pien* 235.1–2 (fig. 11), translated in sec. 2.8). For a convenient list of inscriptions catalogued by the right-left position of positive-negative charges, see Chou Hung-hsiang (1969), pp. 54–57; Li Ta-liang (1972), pp. 89–94. Note that the practice of placing desired charges on the right and undesired on the left of the front of the bone or shell was apparently reversed on the back of the shell (Chou Hung-hsiang [1969], pp. 55–57), indicating that the bifurcation was thought to inhere in the bone or shell itself, not in the viewer.

of the inscription moved from right to left, in the opposite direction; if the *pu* crack faced left, then the inscription columns moved from left to right.[125] Figure 8 is a typical example. Exceptions to this rule, however, do exist.[126]

In general, plastrons tended to be burned from top to bottom (sec. 1.6.3), with the cracks and their inscriptions moving down the shell from the epiplastron or top of the hyoplastron.[127] But the order was by no means assured. The sequence of inscriptions might run from the epiplastron to the top of the hyoplastron, jump to the hypoplastron, and then move back to the bottom of the hyoplastron;[128] and in some cases, the cracks or inscriptions might move up the shell rather than down.[129] The inscriptions give some indication that when a pair of charges was cracked, the right side of the shell was cracked before the left.[130]

In the case of scapulas, the right side of a left-hand scapula tended to be used first and vice versa; and the burning of cracks, and thus the recording of associated charges, tended to proceed either from bottom to top or, less frequently, from top to bottom.[131] The bottom-to-top order was common in routine divinations such as those about misfortunes in the ten-day week, the night, or the royal hunt, in which the individual charges ascended the bone as the days passed.[132] In another case, a series of divination charges about the *pin* 宾 ritual zigzagged up the bone.[133] And in still other cases, particularly in periods I and IIa, the order was irregular.[134]

It is clear from the above discussion that the engraver obeyed certain rules: the inscriptions had to be near their cracks, and within one inscription, the graphs had to be read from top to bottom or sideways; they were never read from bottom to top or in boustrophedon style. Further, the diviner's choice in patterns of placement and sequence was limited. These considerations affect the modern reconstruction of scapulas and plastrons from fragments; a putative matching piece and its inscriptions must fit one of the forms described above (see sec. 5.7).

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[125] Also note that if the *pu* crack itself faces right, then the *pu* graph associated with that crack frequently does so too, and vice versa (Ch'en Meng-chia [1956], p. 13); e.g., *Ping-pien* 10; 12.1–2, 5–6; 14.1–2; 16.1–2 (fig. 15); 18.1–2; 22.1–2, 5–6, 9–10; in this way, the mirror symmetry of the graph itself was preserved. But at other times symmetry was not preserved; e.g., *Ping-pien* 8.2 (fig. 8); 14.4–6; 16.6 (fig. 15); 20.2; 28.3. In these cases, all on the left side of the shell, the *pu* graph faces left, i.e., toward the edge, when one would expect it to face right, toward the spine, like the cracks themselves. This failure to observe symmetry, or to observe congruence between crack and graph, suggests that the left-facing *pu* on the right side of the shell was carved first, and that the engraver simply copied it on the left side of the shell without rotating the graph about its axis. This would accord with the view that the desired charge was usually carved on the right side (n. 124); one would expect the desired charge to have been carved first (cf. n. 130). Other graphs might also be reversed in this way, e.g., the graph for the diviner Ch'üeh in fig. 8 (cf. Serruys [1974], p. 18, who suggests "that *only* a certain type and limited number of graphs are *regularly* written in mirror form").

[126] See, for example, Tung (1936), p. 115; (1945), pt. 2, ch. 6, pp. 5a, 7b; *Chia-pien* 221 and 222, *k'ao-shih*, pp. 35–36; *Ping-pien* 390; 611.

[127] E.g., *Ping-pien* 5; 8 (fig. 8).

[128] E.g., *Ping-pien* 22.

[129] E.g., *Ping-pien* 122. Li Ta-liang (1972), pp. 8–30, analyzes plastron use according to eleven different sequences.

[130] The inscription on the right tends to be complete, the charge on the left tends to be abbreviated (Chang Ping-ch'üan [1956], p. 244; cf. Chou Hung-hsiang [1969], pp. 60–62; Li Ta-liang [1972], p. 29); this suggests that the right side was given priority (cf. Serruys [1974], p. 29), a suggestion supported by the view that the favorable, desired charge was generally placed on the right; see nn. 124 and 125.

[131] Tung (1945), pt. 2, ch. 5, p. 22a; ch. 6, pp. 5a, 8a. Cf. sec. 1.6.3, par. 4.

[132] E.g., Tung (1929), p. 75, figs. 37, 38; Shirakawa (1972), pp. 21, 30, figs. 3.1, 3.2, 3.8; cf. Matsumaru (1963), pp. 36, 51–52. For divinations running down the scapula, see Tung (1945), pt. 2, ch. 6, p. 7b; ch. 7, p. 2a.

[133] E.g., *Ts'ui-pien* 176 (fig. 18).

[134] E.g., *Chien-shou* 29.5 (see Tung [1945], pt. 2, ch. 8, pp. 5a–b.

2.10 *Engraving the Cracks*

The *pu* cracks in scapulas, plastrons, and carapaces were themselves frequently carved more deeply, but only in period I.[135] In some cases, the cracks were carved even though no inscriptions were made; some cracks on a plastron might be carved, others might not be; when the crack was carved, the inscription frequently straddled the crack in a *fan-chao* situation.[136] This suggests, first, that the cracks were carved at the same time as the inscription was engraved.[137] And it suggests, second, that the carving was done to distinguish the cracks from the inscriptions by making them more visible.[138] This view is supported by the fact that colored pigment (sec. 2.12) was sometimes added to these carved cracks.

2.11 *Engraving the Boundary Lines*

The engravers also carved straight or sinuous boundary lines (modern term, *chieh-hsien* 界線) on the bone or shell (as in fig. 7).[139] These were presumably added at the time the inscriptions were carved[140] and served to separate the divination sentences by

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[135] E.g., *Ping-pien* 57; *Yi-pien* 867; *K'u-fang* 1550 (D). Tung (1949a), p. 261, cites other examples on plastrons and carapaces. Ch'en Meng-chia (1956), p. 16, notes that such carved cracks were numerous on the shells excavated from YH127; Tung (loc. cit.) says that some four thousand fragments from this pit had such carved cracks. He also proposes ([1945], pt. 2, ch. 3, p. 26b; [1954b], p. 356) that carved cracks are characteristic of the reigns of Hsiao Yi and early Wu Ting, but this is uncertain; we probably have few, if any, inscriptions from the period of Hsiao Yi (see ch. 4, n. 24). Since, due to the presence of the hollows, the shell was already paper-thin where the cracks formed, it has been suggested that a special knife, with a blade that was semicircular in cross-section, may have been used to cut the cracks so that the carver did not break through the shell; this would explain the semicircular cross-section and blunt ends of most of these deepened cracks, though others still show a V-form (Chou Hung-hsiang [1967/68], p. 27).

[136] Tung (1945), pt. 2, ch. 3, p. 26a; (1949a), p. 261; he cites *Ping-pien* 96; 243; 502, etc. For *fan-chao*, see sec. 2.4.

[137] This contrasts with the view of Chang Ping-ch'üan (1967), p. 861, that the cracks were probably engraved at about the same time as the crack numbers and crack notations.

[138] See ch. 1, n. 93 on the tendency of cracks to lose their visibility.

[139] Tung (1929), p. 59, suggested that the graph *chao* 兆 (small seal) was a picture of these boundary lines, but this is speculative.

[140] The unique example of *Ping-pien* 390.5, in which the boundary line, presumably as the result of carelessness, separates the crack number 2 from its crack, suggests that the boundary lines were carved after the crack numbers (cf. Chang Ping-ch'üan [1956], p. 240). Li Ta-liang (1972), p. 122, suggests that the divinatory **tieng* was omitted in two cases (*Ping-pien* 124.11; 306.9) because the engraver encountered the boundary line. If so, this would suggest that the boundary

forming a series of compartments or "spheres of influence" when there was danger that the graphs of one inscription might be confused with those of another. Some carved boundaries apparently separated cracks alone,[141] but those which served as a boundary between inscriptions were more common.[142] The effort that must have been involved in carving these lines suggests they served an important function.[143]

2.12 *Pigmentation*

We have already noted (sec. 1.3.3) the care with which the oracle bones and shells were smoothed and polished. The not infrequent addition of colored pigments, placed in the grooves of the engraved graphs or in the *pu* cracks themselves, is further evidence of the value placed on them.[144] This practice, like that of engraving the cracks (sec. 2.10) was prevalent under Wu Ting; it appears to have been less common in later periods.[145]

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line had been carved prior to the inscription itself; this would be particularly likely to have been true in the case of *Ping-pien* 306.9, where the adjacent inscription (306.17), i.e., the one that would have taken up space, refers to a divination made two days later that might not have been present when 306.9 was carved. But more research is needed; a fuller study of the boundary lines depends on, and may help resolve, the questions raised in n. 90.

[141] E.g., *Ping-pien* 519; 550; *Yi-pien* 1722; 3343. A *pu* crack on *Yi-pien* 9085 is surrounded by a boundary cartouche, but this may be only a doodle.

[142] E.g., *Chia-pien* 182; 690; 2868; 3313; *Ping-pien* 126; 167; 243; 247 (fig. 12); 304; 323; 473; *Yi-pien* 145; 151; 811; 1988; *Ching-hua* 1; 2 (fig. 14); 3. For other examples, see Chang Ping-ch'üan (1954), p. 229; (1956), p. 240. Certain puzzling cases (see the *k'ao-shih* to *Yi-chu* 27 and 73) in which a boundary line seems to divide graphs in the same inscription may perhaps be explained as instances of two abbreviated inscriptions.

[143] Cf. n. 102. Boundary lines might appear on several contemporary bones dealing with the same topic; cf., for example, H103:18+20 (*KK* [1975.1], p. 42, plate 11.2), with *Chih-hsü* 64 and *Ts'ui-pien* 79 (both S466.3). On the diminishing use of boundary lines in the later periods, see ch. 4, n. 88.

[144] According to Britton (1937), p. 1, the colors also "occur on the surface, as though originally spread over the entire bone or shell in the manner of a varnish." No other report refers to such surface colors. As Britton himself says on the same page, the colors in the cracks appear "to have been applied with great care"; and he later wrote that the color in the grooves "seems to have been applied in fluid form by brush, the brush point having been fine enough to line the grooves without smearing the margins" (1940), p. 15. Conceivably, the pigments were rubbed into the grooves and the surface then wiped clean.

[145] According to Ch'en Meng-chia (1956), p. 16, brownish-red pigment was still used in later periods, but having lost its color with age, it has frequently been overlooked. Britton (1940), p. 7, suggested that black pigment was used after the red phase of Wu Ting's reign; but black and red do appear on the same oracle bone; e.g., *Ping-pien* 208 (see the colored frontispiece to *Ping-pien*, vol. 2, pt. 2); *Ning-hu* 2.25 (D); 2.26 (D); 2.28–2.31 (D) (after Ch'en Meng-chia [1956], p. 15). According to Tung (1933), p. 421, the inscription of diviner Wei on *Chia-pien* 3339 was colored red, that of diviner Hsüan on the same bone was colored black (the *k'ao-shih*, p. 424, however, records only the red). For examples of pigmented bones and shells, see *Chia-pien* 50; 65; 67; 68; 84; 393; *Ping-pien* 12–21 (sec. 3.7); 90; 95; 97; 207; 209; 279; 281; 283; 284; *Yi-pien* 1877; 6274; *Ching-hua* 2 (fig. 14). Britton (1940), pp. 15–16, cites cases in the Princeton collection (*Ch'i-chi*, P). An asterisk precedes the rubbing numbers of pigmented bones and shells in *Menzies*, *Ming-hou*, and *White*. Li Yen (1970), plate 1, provides a not entirely satisfactory color reproduction of a scapula with red pigment in the Royal Ontario Museum.

2.12.1 *The Nature of the Colors*

The colors have been described as brilliant red, vermillion, dark red tending to black, brownish red, dark brown, and black.[146] The cracks, when colored, were usually filled with brown or black pigment, the crack numbers and crack notations with brown.[147]

To what extent the pigments were originally these colors and to what extent they may have decomposed and assumed these colors in the intervening three millennia is not clear.[148] But in some cases, at least, the red color was still "fresh and beautiful."[149] Chemical analysis of one red and one black test specimen taken from carved graphs in the Chalfant collection at Princeton showed that the red was cinnabar (mercuric sulfide). Of the black pigment it could be concluded only that it consisted of "some carbonaceous matter."[150] More research on a large sample of scientifically excavated materials is needed before any final conclusions can be drawn about the original color and character of the pigments. Since a Yünnanese diviner of 1962 rubbed ash into the scapulimantic cracks, it may be that the Shang diviners obtained their black "carbon or organic" colors from the charcoal or wood fuel used to heat the divining rod.[151]

2.12.2 *Function and Rationale*

The pigments were used on both scapulas and turtle shells. When the crack numbers or crack notations were colored red, the related inscriptions were colored red too; but if the inscriptions were red, it did not necessarily follow that the notations were.[152] Further rules governing the use and choice of color have not yet been determined.[153]

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[146] Britton (1937), p. 1; Chang Ping-ch'üan (1957), p. 4; (1967), p. 865. Li Yen (1966), p. 2, refers to a scapula smeared with yellow.

[147] Chang Ping-ch'üan (1967), p. 865.

[148] In some cases the colors have faded badly; e.g., *Ping-pien* 59; 69; 78; 90; *k'ao-shih*, pp. 94, 103, 111, 122. The distribution of brown and black found on *Ping-pien* 12–21 (see table 8) makes it likely that the two colors, in this case at least, were originally the same.

[149] Tung (1948a), p. 127, referring to *Chia-pien* 3056; cf. Tung (1965), p. 47, on *Ching-hua* 2 (fig. 14). He made a similar comment about *Ping-pien* 284: "the graphs all adorned with cinnabar, red, as fresh as new" ([1954b], p. 354), but according to the *k'ao-shih*, p. 348, the graphs were filled with black.

[150] Benedetti-Pichler (1937), p. 152. The red pigment was taken from *Ch'i-chi*, P 39 (D), the black from P 13 (D) (ibid., p. 150). Britton, apparently extrapolating from Chou ritual practice, told Benedetti-Pichler that "the black pigment is thought to be the blood of animals used in divination" (ibid., p. 149). As Benedetti-Pichler notes (p. 152), the negative hemin test does not conclusively exclude the presence of blood. As to the red coloring, Rutherford J. Gettens subsequently concluded that it "was made from natural cinnabar, because of the heterogeneous size of the particles" (Britton [1940], p. 7).

[151] Lin Sheng (1964), pp. 99, 101. Ch'en Meng-chia (1956), p. 16, identifies the black as carbon, but I do not know on what evidence.

[152] Chang Ping-ch'üan (1967), p. 865.

[153] According to Ch'en Meng-chia (1956), p. 15, citing five examples, large characters were filled with red pigment, small ones on the same bone or shell with black (cf. Chu Fang-p'u [1935], ch. 6, p. 18a; Kaizuka [1967], p. 204). Chang Ping-ch'üan (1967), p. 866, however, finds no relation between the color and size of the graphs. Since some of the inscriptions which were originally colored are thought to have lost all their pigmentation, it is unlikely that we shall be able to reconstruct the Shang situation.

Quite possibly, there was no fixed rule, the diviner using whichever color was available and only when it was available. A majority of the inscriptions, in any event, are not thought to have been colored.[154]

By analogy with the Yünnanese case, in which the modern diviner rubbed ash into the cracks, apparently to make them more visible, it is probable that the Shang used pigments for the same reason.[155] We can only speculate that the coloring may also have served to beautify the graphs, or to sanctify and render them more potent.[156] Whatever the function, a blend perhaps of the practical, aesthetic, and religious, it appears to have been an embellishment, not an essential feature, of Shang divination practice.

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[154] Given the tendency of pigment to fade, and of the medium (such as gum or resin?) with which it may originally have been mixed to decay (Goodyear [1971], pp. 77, 95, 126–127), the possibility that all graphs were once colored cannot be entirely excluded. It is generally thought, however, that this was not the case, even in period I (e.g., Tung [1949a], p. 265; *Ping-pien* 17.1–2, *k'ao-shih*, p. 40).

[155] See the sources cited in n. 151; see too ch. 1, n. 98. Britton (1940), p. 7: "Glyphs cut in fresh bone are scarcely visible under well-diffused light and this probably explains the use of colour in the glyphs." Obscure references to inking the shell appear in *Chou-li* ("Ch'un-kuan, Pu-shih"; *CLCY*, ch. 47, p. 14b; Biot [1969], vol. 2, p. 75; cf. Eisenberger [1938], p. 67), *Li-chi* ("Yü-tsao," p. 166; Couvreur [1950], vol. 1, pp. 682–683), and in the pseudo-K'ung commentary to *Shang-shu*, "Lo-kao" (*Shih-san-ching chu-shu*, ch. 15, p. 16a; Legge [1865], p. 437, n.). But these passages, which have usually been taken to refer to the inking of pseudocracks on the shell and to the ability of the fire to dry the ink or to produce cracks replicating the inked ones, cannot be used to understand the Shang evidence; rather, the opposite is true (Lin Sheng [1964], pp. 100–101; cf. Chavannes [1911], p. 132; Jao [1961], p. 953). That the primary motive may have been visibility is suggested by the following comment on classical Greek inscriptions: "For greater clarity, stone-cut letters were often also coloured with paint, as is in fact not infrequent in modern times. The colours have ... seldom survived, but where traces do remain they suggest that red was the colour ordinarily used for the purpose. Where two colours were used, alternate lines were painted in red and black. This two-colour system may have been more widespread than the scanty remains of it so far found suggest" (Woodhead [1967], p. 27; cf. p. 129, n. 1).

[156] The hematite surrounding the skeletons in the upper cave at Chou-k'ou-tien (Chang Kwang-chih [1968], p. 70) and at Yang-shao sites such as Ta-ho-ts'un and the fact that the bones of some of the persons buried at Hsiao-t'un were colored red, a frequent occurrence in Shang graves (Shih Chang-ju [1952], pp. 466, 468–485), indicate that red, the color of blood, may have had religious significance in both Neolithic and Shang times (cf. Kaizuka [1967], pp. 204–205). Shirakawa (1972), p. 29, points out that the *ming-ch'i* 明器 in the Shang royal tombs were frequently daubed with red, probably to sanctify them. I am dubious about the potency argument because (1) we find that the marginal notation "Ch'üeh sent in 150," carved on the bridge of a plastron, was also smeared in red (e.g., *Ping-pien* 95.2; *Yi-pien* 6423 [after Tung (1948a), p. 124]); so were boundary lines (*Chia-pien* 65, *k'ao-shih*, p. 14), and it is hard to see what function could have been served by rendering the notation of provenance, or a boundary line, more potent; (2) in complementary charge pairs, such as "Sick tooth will be favorable / will perhaps not be favorable" (*Ping-pien* 16.9–10 [fig. 15]; see sec. 3.7.1.2), it is hard to see why the Shang would have wanted to make the undesirable alternative as potent as the desirable. The potency argument would be strengthened if it could be shown that there was a tendency for prognostications to be colored in this way, i.e., as a sign that the king was attempting to make his forecasts come true. But this does not appear to have been the case.

CHAPTER 3

Deciphering the Inscriptions

3.1 *Introduction to the Scholarship*

Few events have excited the minds of modern Chinese scholars like the discovery of the oracle bones. In the three-quarters of a century that has elapsed since 1899, when Wang Yi-jung and Liu E first appreciated the true nature of these "dragon bone" inscriptions,[1] a large body of books and articles—at the last count, over 180 books and over 970 monographs[2]—has appeared "like bamboo shoots after spring rain." In this chapter, I will first introduce the essential works and indicate how they may be used.[3]

3.2 *Published Sources*

Approximately 107,000 oracle-bone pieces have now been assembled in over eighty collections, generally in the form of rubbings.[4] A list of the major collections is given in Bibliography A, together with the abbreviations used to refer to them in this book. Mechanically reproduced copies about whose accuracy there should generally be no question (sec. 5.5), these rubbings are the primary sources for most Shang historians.[5]

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[1] For the famous story, first published by Tung in 1930, about Wang Yi-jung's sickness and Liu E's discovery of inscriptions on the "dragon bones" from a Peking pharmacy, see Lefeuvre (1975), p. 17, n. 1; Li Chi (1977), pp. 7–11. Liu E himself made no mention of the incident in his introduction to *T'ieh-yün.*

[2] Shima (1971), preface, p. 1; cf. Chang Ping-ch'üan (1967), p. 841, who refers to approximately 1,000 articles and over 180 books by about 300 scholars.

[3] The progress of oracle-bone scholarship (*chia-ku-hsüeh* 甲骨學) has involved several interrelated stages: the identification of the true nature of the inscriptions; the identification of the site from which the inscribed bone fragments were being taken; the collection and publication of those fragments; the eventual conduct of scientific excavations in the Hsiao-t'un region; and, above all, the gradual decipherment, still continuing, of the graphs. The history of this progress has been well summarized elsewhere. See, in particular, Kaizuka (1946), pp. 191–201; (1967), pp. 8–60; Jung Keng (1947); Hu Hou-hsüan (1955), pp. 35–42; Ch'en Meng-chia (1956), pp. 50–54; Tung (1965), pp. 46–118. For Western-language accounts, see Creel (1938), pp. 1–16; Lefeuvre (1975), which is fundamental; and Li Chi (1977).

[4] Matsumaru (1973), pp. 19–22, lists eighty-eight collections (excluding those like *Ping-pien*, *Cho-ts'un*, and *T'ung-tsuan*, which duplicate material previously published) and indicates the style

Many of these collections, especially those published more recently, have been printed together with modern transcriptions. They frequently include commentaries about particular graphs and matters of interpretation. A scholar working with any collection of rubbings should first determine whether or not a *k'ao-shih* or *shakubun* 考文 exists; these are either published in the rear of the rubbings volume (as in *Ping-pien*), in a separate *ts'e* (as in *Yi-chu* or *Yi-ts'un*), or in a subsequent volume (as in *Chia-pien k'ao-shih* or *Jimbun shakubun*). Table 9 lists the commentaries which exist for the major published collections.[6]

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of reproduction used in each. On the number of fragments, see appendix 3, n. 2. On the provenance and, when known, the location of the fragments reproduced in these collections, see Jung Keng (1947), pp. 15–30; Hu Hou-hsüan (1955), pp. 13–35; Lefeuvre (1975) and his work in progress, tentatively titled "Bibliographical Studies about the Source Materials of Oracle-Bone Inscriptions," which also discusses the quality of various editions of the same collection. Tamada (1972 et seq.) provides punctuated and annotated versions of the authors' prefaces to the various collections together with Japanese translations.

[5] Oracle bones are usually cited by a number which may be of two styles. The first and more traditional style (used by such collections as *Chien-shou*, *Hsü-pien*, and *T'ieh-yün*) refers to the rubbing by citing the *chüan* (if any), the page number, and the number of the fragment, counting in Chinese style sequence (i.e., down the columns, right to left) and continuously from recto to verso; e.g., *Ch'ien-pien* 6.39.6 (S190.4) refers to the bottom rubbing in the right-hand column of p. 39b of ch. 6 of *Yin-hsü shu-ch'i ch'ien-pien*. In some cases the work is divided into parts 1 and 2 (*shang* 上 and *hsia* 下) (as in *Hou-pien* and *Hsü-ts'un*) or into topical sections (as in *Fu-yin*), but in all these cases the last part of the citation is to the page number and to the number of the fragment on that page. The second style of citation refers to the oracle bone by the rubbing number printed by it; in collections using this method (e.g., *Chia-pien*, *Yi-pien*, *Jimbun*, *Menzies*), the numbers run consecutively. It is always necessary to distinguish between the plate number and the rubbing number. In *Ping-pien*, the rubbing number is given in standard Chinese numerals at the lower left of the rubbing plate; it is the second number given at the start of the *k'ao-shih*. The plate number is given in documentary Chinese numerals at the top right corner of the rubbing plate; it is the first number given at the start of the *k'ao-shih* and is there preceded by the words *t'u-pan* 圖版. Thus, *Ping-pien* 548 (rubbing number), for example, is *Ping-pien* plate 519. (The first edition of Shima's *Sōrui* [sec. 3.3.2] refers to the *Ping-pien* plastrons by plate number, but the additional rejoinings recorded in the second edition are cited, inconsistently, by the *Ping-pien* rubbing number.) Note that the *Ping-pien* situation is complicated by the presence, under the plastron, of the rubbing numbers (in arabic numerals) and the registration numbers (in smaller arabic numerals) of the constituent *Yi-pien* fragments. (On registration numbers, see ch. 1, n. 31.) A similar multiplication of numbers occurs in *Chui-ho*. It is standard practice in all cases to cite the rubbing number (particularly since the plate number is ambiguous if more than one rubbing is reproduced on a plate). Other conventions may be noted. The notations *cheng* 正 and *fan* 反 refer to the front and back of a bone or shell (cf. ch. 1, n. 46). In some collections (e.g., *Jimbun*, *Menzies*, *Ming-hou*), the letters "a," "b," and "c" refer to inscriptions on the front, back, and (if a scapula) socket, respectively; "S" and "B" stand for shell and bone (cf. ch. 1, n. 31); and an asterisk indicates if the graphs were filled with colored pigment (see ch. 2, n. 145).

[6] A few collections of rubbings are also provided with indexes, arranged either by oracle-bone form (e.g., *Pu-tz'u*, pt. 3), *Shuo-wen* form (e.g., *Jimbun sakuin*), or modern-graph form (e.g., *Ts'ui-pien*, *T'ung-tsuan*). But these adjuncts have been rendered virtually superfluous by the appearance of *CKWP* (sec. 3.3.1) and Shima's *Sōrui* (sec. 3.3.2).

3.3 *Reference Works*

Over three thousand Shang graphs have been identified on the oracle bones, and about half of these may be translated or identified with varying degrees of certainty.[7] The dictionaries and concordances listed below are indispensable to the study of the inscriptions.

3.3.1 *Dictionaries*

The standard dictionary is *Chia-ku wen-pien* (abbreviated *CKWP*), which contains a total of 4,672 entries taken from forty collections of published inscriptions.[8] This needs to be supplemented, on occasion, with *Hsü chia-ku wen-pien.*[9]

The entries in both dictionaries, like those in many works of oracle-bone scholarship, are arranged according to the 540 radicals of *Shuo-wen.* Each entry consists of the *Shuo-wen* graph (when known) as heading, followed by hand-copied reproductions of the oracle-bone characters it is thought to represent. Occasionally, there is brief discussion of the graph's meaning, but generally the *Shuo-wen* graph is the only "definition" provided. The

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[7] Kaizuka (1967), p. 204, estimates that we know about 3,000 graphs on the oracle bones, about 800 of which can be interpreted; Chang Ping-ch'üan (1967), p. 829, refers to 3,320 graphs, of which we can recognize about 1,000, with 500 to 700 more identifiable but in dispute. Hu Hou-hsüan (1945), p. 5b, speculated, extravagantly in my view, that the full oracle-bone vocabulary, were we able to recover it, would have included 5,000 to 6,000 words, of which we would be able to recognize from 2,000 to over 3,000. No exactitude is possible in such counts (for other examples, see Chang Ch'un-shu [1972], p. 283); nor is anything more than a general estimate necessary. See too n. 20.

[8] *Chung-kuo k'e-hsüeh-yüan k'ao-ku yen-chiu-so* 中國科學院考古研究所, *Chia-ku wen-pien* 甲骨文編, K'ao-ku-hsüeh chuan-k'an yi-chung ti-shih-ssu hao 考古學專刊乙種第十四號 (Peking, 1965). This work, prepared under the general editorship of Sun Hai-po 孫海波, is a revised edition of his *Chia-ku wen-pien* (Peiping, 1934), which identified some 500 to 600 graphs, taken from eight collections (cf. Teng and Biggerstaff [1971], p. 46). Some of the 4,672 entries in *CKWP* probably refer to the same words and could be combined. The 1,723 entries in the main section of the dictionary consist of words which have been "identified" either in the sense that a *Shuo-wen* graph can be assigned (in 941 cases) or that a modern graphic reconstruction and putative position within the *Shuo-wen* system of classification can be provided. A *ho-wen* 合文 section contains 371 entries for graphs which frequently appear in conjunction, such as those used in ancestral titles. The appendix contains 2,949 entries of graphs which have not been deciphered or classified (*CKWP*, preface, p. 1). The forty collections consulted are listed with their abbreviations between the appendix and the modern-character index. An edition of this dictionary was reissued by Yi-wen in Taipei in 1975 under the title *Chiao-cheng chia-ku wen-pien* 校正甲骨文編.

[9] Chin Hsiang-heng 金祥恆, *Hsü chia-ku wen-pien* 續甲骨文編 (Taipei, 1959). This is a supplement to Sun Hai-po's 1934 dictionary (referred to in n. 8). Based on thirty-eight published collections, it contains 1,048 oracle-bone graphs identified with *Shuo-wen* equivalents, 1,585 graphs not found in *Shuo-wen*, an appendix of *ho-wen*, and an appendix of some 300 unidentified graphs. There are two modern-character indexes for the graphs with and without *Shuo-wen* equivalents. Cf. Noel Barnard in *RBS* 5 (1959), no. 463. All three dictionaries may need to be consulted on occasion. For example, for the graph *yüan* 元, *CKWP* (1965) has more citations (thirty-two) than the 1934 edition (nine citations) and the *Hsü chia-ku wen-pien* (twelve citations) combined. But due to the decision of the 1965 editors (preface, p. 3) not to reproduce identical forms of the same character, the 1965 edition has many less entries for the graph *chiu* 酒 than the 1934 edition.

modern-character indexes in the rear permit the reader to find a graph, provided he already knows its modern form.

More useful as a dictionary is *Chia-ku wen-tzu chi-shih* (abbreviated *CKWT*).[10] Based upon the graphs listed in *Chia-ku wen-pien* (1934) and *Hsü chia-ku wen-pien* (1959), and also organized according to the *Shuo-wen* system, this handwritten work assembles in one place the commentaries, sometimes abbreviated, of scholars who have discussed the etymologies of individual oracle-bone graphs. At the end of each entry, Li Hsiao-ting reviews the evidence and gives his own conclusions. A table of contents and various indexes to the main text, a supplement, and first appendix (for graphs not yet identified with certainty) make the work convenient to consult. The opinions of some scholars have at times been overlooked, but the work is an essential reference to early Chinese etymology, focusing on earliest word usage as found in the Shang inscriptions.[11] It is not cited specifically on many occasions in this book because I assume it to be a first source to which any scholar will turn for information about particular graphs.[12]

Chia-ku-hsüeh 甲骨學 cannot be divorced from *chin-shih-hsüeh* 金石學. Shang bronze inscriptions which contain more than a minimal number of graphs are relatively few, but since the language of the bronzes may throw light on the language of the bones, and since our understanding of Shang graphs frequently depends on our understanding of the graphs found on Chou bronzes, the scholar of Shang history should be prepared to consult the two major bronze inscription dictionaries: *Chin-wen-pien* and *Chin-wen ku-lin.* *Chin-wen-pien* (abbreviated *CWP*) contains in its main text entries for 1,894 graphs found in Shang and Chou bronze inscriptions, arranged according to the *Shuo-wen* system.[13] Each entry is headed by the *Shuo-wen* form or a modern graph reconstruction, followed by the bronze forms listed in columns. A modern graph equivalent is listed under the first bronze form with occasional brief discussion. The name of the vessel from which it comes is given under every graph. An appendix with 1,199 entries gives graphs and insignia whose modern forms have not been identified. This is followed by an index to the 3,165 vessels consulted and an index of modern graphs. Like *Chia-ku wen-pien*, *Chin-wen-pien* is less a dictionary than a list of occurrences. Definitions are minimal.

Chin-wen ku-lin, which supersedes *Chin-wen-pien*, is a combined concordance and dictionary.[14] Following the order of the graphs in *Chin-wen-pien* (1959), it not only attempts to reproduce every occurrence of the graph in question that may be found in the published corpus of Shang and Chou vessels,[15] it also quotes the sentence in which the graph appears. Some twenty thousand of these inscription sentences are reproduced in the 1,894 entries. In addition, commentaries by other scholars dealing with the graph or the sentence are quoted in full, together with copious notations by Chou Fa-kao and his fellow editors. Reproducing the inscriptional context and assembling the scholarship in this way, *Chin-wen ku-lin* is a major reference work for etymological study.

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[10] Li Hsiao-ting 李孝定, *Chia-ku wen-tzu chi-shih* 甲骨文字集釋, Chung-yang yen-chiu-yüan li-shih yü-yen yen-chiu-so chuan-k'an chih wu-shih 中央研究院歷史語言研究所專刊之五十, 8 vols. (Nankang, 1965).

[11] For more information about *CKWT*, see my account (forthcoming) in *RBS* 11. Recent studies of particular graphs may be found in *Chung-kuo wen-tzu* 中國文字 (Taipei); there is an index in vol. 41 (1971). This periodical ceased publication, temporarily at least, as of vol. 52 (June 1974).

[12] The second edition of Shima's *Sōrui* (sec. 3.3.2) keys each entry to the proper page in *CKWT* and conveniently assembles these cross references at S602–607.

[13] Jung Keng 容庚, *Chin-wen-pien* 金文編 (Peking, 1959). This is a revised edition of Jung Keng, *Chin-wen-pien* (Tientsin [?], 1925). The 1959 edition has been reissued by Lien-kuan ch'u-pan she 聯貫出版社 as the first part of *Chin-wen cheng-hsü-pien ho-ting-pen* 金文正續編合訂本 (Taipei, 1971). For more information about the work, see Teng and Biggerstaff (1971), p. 47.

The fact that these five dictionaries are all arranged by the *Shuo-wen* system has advantages. In the first place, the 540 radicals provide a convenient series of headings under which to place graphs for which no modern form exists. Further, since the dictionaries are organized on the same principle, a scholar may move rapidly from one to another; a graph at the start of *chüan* 5 in one will be at the start of *chüan* 5 in all (it is for this reason that old style citations are preferable to new [for example, *CKWP*, ch. 12, p. 18b, rather than *CKWP*, p. 496]). The modern-character indexes at the rear permit ready entry into the system for those not familiar with it.

Since the study of the inscriptions is not just the study of graphic forms but is also the study of language (cf. sec. 3.5.2 on phonology), it goes without saying that a student of the Shang inscriptions will consult other etymological dictionaries as the need arises. Particularly useful are *Grammata Serica Recensa* (abbreviated *GSR*),[16] *Kanji gogen jiten*,[17] and *Kanji no kigen*.[18] These dictionaries attempt to establish phonetic and semantic word families in early Chinese, and sometimes refer to the oracle inscriptions.

3.3.2 *Concordances and Compendiums*

Inkyo bokuji sōrui (abbreviated S) is a concordance of the oracle inscriptions in sixty-three collections.[19] Over three thousand words have been classified.[20] Under each entry, Shima Kunio has hand copied, in a standardized oracle-bone script (examples of which grace the margins of this book) all the inscriptions in which the graph in question appears, giving the citation for each. There are inevitable errors, inconsistent transcriptions, and omissions; some entries for the more common graphs have been abbreviated (this is noted); and inscriptions published since 1959, together with some minor collections published only in journals, are not included.[21] But the work's fundamental contribution is threefold. First, it attempts to provide a comprehensive listing of word usage in context. Second, it provides control over word frequency (except, as already noted, in the case of common graphs). Third, since Shima copies the inscriptions under each entry in chronological order (cf. sec. 4.1.1), it provides (within the limits imposed by the accuracy of his transcription) a rapid introduction to the epigraphic evolution, if any, of individual graphs (cf. sec. 4.3.1.4) and to their periodicity (appendix 5).

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[14] Chou Fa-kao 周法高, with Chang Jih-sheng [Cheung Yat-shing] 張日昇, Hsü Chih-yi [Tsui Chee-yee] 徐芷儀, and Lin Chieh-ming [Lam Kit-ming] 林潔明, eds., *Chin-wen ku-lin* 金文詁林, 16 vols. (Hong Kong, 1974–1975). For a review, see Mattos (1976).

[15] Jung Keng's original corpus in *Chin-wen-pien* (1959) has been expanded to include fifty-three more inscriptions from Kuo Mo-jo (1957).

[16] Bernhard Karlgren, *Grammata Serica Recensa* (Stockholm, 1957).

[17] Tōdō Akiyasu 藤堂明保, *Kanji gogen jiten* 漢字語源辞典 (Tokyo, 1969). For a review of an earlier version of this work, see Pulleyblank (1968).

[18] Katō Joken 加藤常賢, *Kanji no kigen* 漢字の起原 (Tokyo, 1970).

[19] Shima Kunio 島邦男, *Inkyo bokuji sōrui* 殷墟卜辞綜類, 2d. rev. ed. (Tokyo, 1971). The first edition (Tokyo, 1967), which is now less useful because it lacks the modern-character index, modern-character identifications at the entry heads, in-text cross references, cross references to *CKWT*, and *Yi-pien/Ping-pien* identifications of the second edition, was reprinted in Taipei by T'ai-shun shu-chü 泰順書局 in 1970. Despite the reduced page size of the second edition (1971), it is to be preferred in every respect to the first and is the edition usually cited in this book.

[20] From the table of contents (S9–12) I estimate that the work contains about 3,095 entries. Shima, however, indicates that the 840 entries for which cross references are given to *CKWT* constitute no more than one-fifth of the entries (front matter, p. 3), so he would seem to place the number of entries at over 4,000.

The work is also of major importance because, unlike the oracle-bone dictionaries described above (sec. 3.3.1), it allows a graph entry to be found, *even when the seal or modern form of the graph is not known*. This may be done by using the rear index (pp. 590—601), arranged under the 164 oracle-bone "radicals" devised by Shima. Once the entry has been found, researchers may study all occurrences of the graph in context; they may move on to the commentaries which have been published for certain of the inscriptions cited; or they may, in the 840 cases for which the cross reference is provided, move to the relevant page in Li Hsiao-ting's *Chia-ku wen-tzu chi-shih*.[22] *Inkyo bokuji sōrui* and *Chia-ku wen-tzu chi-shih* are complementary reference works. Neither should be relied on as a primary source for the inscriptions or commentaries. But they are invaluable guides to the sources and scholarship, the two fundamental works in the library of any oracle-bone scholar.

Based on a corpus of fifty-eight published and seven unpublished collections, *Yin-tai chen-pu jen-wu t'ung-k'ao*[23] prints in modern transcription all the divination charges associated with the names of 137 diviners.[24] Within each diviner's section, the inscriptions are subdivided by topic: rain, the ten-day week, eclipses, hunting, and so on. A compendium rather than a concordance, Jao Tsung-yi's work is less useful than Shima's; first, because it is organized by diviner and topic rather than by words; second, because divinations lacking a diviner's name are not included; third, because his modern-character transcriptions, useful though they are to the beginner, introduce a considerable element of interpretation. But it is a valuable supplement, especially for studying the role of particular diviners. Once the diviner's name and the topic of a particular charge are known, a modern transcription may generally be found without difficulty.[25]

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[21] It is true that the second edition identifies rejoined *Yi-pien* fragments that appear in the *Ping-pien* volumes published down to 1967, i.e., down to *Ping-pien* 512 (for indexes to these rejoinings, see n. 72); but in terms of new fragments (as opposed to new pieces; cf. appendix 3, n. 1) no collection published since 1959 is included.

[22] Examples of how this works are given in secs. 3.6.1 to 3.6.3; see too n. 12. For my fuller description and evaluation of *Inkyo bokuji sōrui*, see Keightley (1969a) and *RBS* 12 (forthcoming).

[23] Jao Tsung-yi 饒宗頤, *Yin-tai chen-pu jen-wu t'ung-k'ao* 殷代貞卜人物通考, 2 vols. (Hongkong, 1959).

[24] Cf. ch. 2, n. 13.

[25] For a more detailed assessment of *Yin-tai chen-pu jen-wu t'ung-k'ao*, see Noel Barnard in *Monumenta Serica* 19 (1960), pp. 480–486.

3.3.3 *Bibliographies*

Four major bibliographies of oracle-bone studies have been published. The first is Hu Hou-hsüan's *Wu-shih-nien chia-ku-hsüeh lun-chu-mu*, arranged topically and with author and title indexes.[26] Although useful, it has been superseded to a large extent by Peng's "An Annotated Bibliography of the Publications on the Inscribed Oracle Bones Excavated from the Yin Ruins,"[27] arranged by author, and by Tung and Huang's *Hsü chia-ku nien-piao*.[28] This last is arranged chronologically, but the author index in the rear permits it to be used as a bibliography. The most recent bibliography is Christian Deydier's *Les Jiaguwen: essai bibliographique et synthèse des études*; this covers the period down to 1974 and provides romanizations for the works cited.[29] For current scholarship, section XIII.2 of the annual bibliography *Tōyōgaku bunken ruimoku* may be consulted.[30] Bibliographies dealing with studies of bronze inscriptions should not be overlooked.[31]

3.4 *General Studies*

Several comprehensive studies of Shang culture, based in varying degree on the information found on the oracle bones, may help the beginning student place the inscriptions in historical context. The best semipopular accounts are those by Itō Michiharu (1967), Kaizuka Shigeki (1967), and Shirakawa Shizuka (1972); Li Ya-nung (1955) is also of interest. More technical studies, useful because they cite inscriptions copiously, at times assuming the appearance of a *catalogue raisonné*, are those by Wu Tse (1953), Shima Kunio (1958), Itō (1975, pt. 1), Akatsuka (1977), and, still the best comprehensive introduction, Ch'en Meng-chia (1956). The study of Shang religion by Chang Tsung-tung (1970) is also recommended since it translates nearly five hundred inscriptions.[32]

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[26] Hu Hou-hsüan 胡厚宣, *Wu-shih-nien chia-ku-hsüeh lun-chu-mu* 五十年甲骨學論著目 (Shanghai, 1952; reissued, Hongkong, 1966). Hu (1955), pp. 38–41, lists by category the principal books likely to be useful for beginners.

[27] Madge Shu-chi Peng, "An Annotated Bibliography of the Publications on the Inscribed Oracle Bones Excavated from the Yin Ruins," *Chinese Culture* 6.3 (1965), pp. 97–149. The annotations are entirely bibliographical in nature.

[28] Tung Tso-pin 董作賓 and Huang Jan-wei 黃然偉, *Hsü chia-ku nien-piao* 續甲骨年表 (Taipei, 1967). For further discussion of oracle-bone bibliographies, see my account (forthcoming) in *RBS* 12.

[29] Christian Deydier, *Les Jiaguwen: essai bibliographique et synthèse des études*, Publications de l'école française d'extrême-orient, vol. 106 (Paris, 1976).

[30] Kyōto daigaku jimbun kagaku kenkyūjo 京都大學人文科學研究所, *Tōyōgaku bunken ruimoku* 東洋學文獻類目 (Kyoto, yearly); title slightly different before 1963. Hayashi Minao attempted to provide annual bibliographies of oracle-bone and bronze inscription studies (*Kōkotsugaku* 甲骨學 6 [March 1958] to 9 [1961]); it is to be hoped that if *Kōkotsugaku* resumes publication, this bibliography will be continued.

[31] Consult in particular Jung Yüan 容媛 and Jung Keng 容庚, *Chin-shih shu-lu mu* 金石書錄目 (Shanghai, 1936), and its supplement (*KK* [1955.3], pp. 70–80) (reissued together as *Chin-shih shu-lu mu chi pu-pien* 金石書錄目及補編 [Taipei, 1971]); Hiroshima daigaku bungakubu Chūgoku tetsugaku kenkyūshitsu 廣島大學文學部中國哲學研究室, *Kimbunkankei bunken mokuroku* 金文關係文獻目錄, mimeographed (Hiroshima, 1956). For more recent studies, the *Tōyōgaku bunken ruimoku* (n. 30) should be consulted.

[32] Consult too, the extensive review by Serruys (1974), which retranslates many of the same inscriptions. For some recent monographs on various aspects of Shang culture, see ch. 5, n. 87.

3.5 *Translation: General Considerations*

Historians, grammarians, epigraphers, and linguists all have a contribution to make to the translation of Shang inscriptions. Studies which place the inscriptions in a cultural context may aid philologists and grammarians by establishing the frame of reference in which the inscriptions were made. Philology, in Peter A. Boodberg's striking phrase, is "an unending conversation with the dead." We cannot have that conversation without a knowledge of their history, just as we cannot know their history without that conversation.

The whole issue of what is meant by the "translation" of a Shang inscription is a thorny one.[33] Leaving aside the anthropological difficulties involved in trying to understand one culture's conceptions from the viewpoint of another,[34] the technical problems alone are intimidating. Phonetic considerations are of some assistance (sec. 3.5.2), but, as yet, scholars must deal primarily with the written graphs, representations of a spoken language we can no longer hear. To transcribe those Shang graphs as modern Chinese graphs (sec. 5.6), to say nothing of rendering those graphs into English, inevitably betrays the original Shang conceptions.

Given these limitations, the scholar should not merely leap, often in an act of semantic faith, from the shape of the Shang graph to an apparent small-seal descendant and then attempt to force the *Shuo-wen* definition upon the Shang. It is true that our ability to read the Shang documents rests firmly on Chou and Han texts; if we did not have Western Chou bronze inscriptions, Chou texts, small-seal forms, and *Shuo-wen* to assist us, it would be virtually impossible to read the oracle-bone inscriptions. But the danger of contamination by later conceptions must always be evaluated before a translation of the Shang materials is attempted. As Britton noted long ago, "tracing the stylization of a written symbol through ten or twelve centuries is one thing, and determining its changing sense from epoch to epoch is another."[35]

This chronological and cultural distance between the Shang inscriptions and the first Chinese texts that give us the subtle flavor and resonance of meaning on which true translation depends should make us cautious about coining Shang neologisms if the neologisms depend upon classical overtones rather than Shang usage.[36] We have no way other than context of determining the contemporary flavor and emotional load of most of the Shang words with which we deal, a deficiency that makes our view of Shang history flat and imprecise (cf. sec. 5.2).

Any translation offered, therefore, should first take account of the various contextual requirements which the word must satisfy in the Shang inscriptions. It is for this reason that Shima's *Inkyo bokuji sōrui* (sec. 3.3.2) is valuable, since it provides us with copies of most of the published inscriptions which contain a particular graph or phrase. Ideally, one must attempt to establish graphic, semantic, and, where possible, phonetic ties between Shang and later words, ties which show that no philological violence is being done by taking the later word as the descendant of the Shang word. But it is not always possible to make such filiations, and hence it is not always possible to make a precise translation or to identify an equivalent modern Chinese word with confidence. In such cases, we should not strive for an accuracy that may be misleading, but should rely, provisionally at least, on a functional translation or kenning which on the basis of Shang usage appears to carry the appropriate general meaning.[37]

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[33] For a useful introduction to the problem, see Serruys (1974), esp. pp. 19–21.

[34] On this issue, see in particular Winch (1964) and Lukes (1967), together with the other articles contained in Wilson (1970); Rorty (1972); J. Z. Smith (1972).

[35] Britton (1936), p. 207.

[36] On neologisms in Chinese translation, cf. Schafer (1972), pp. 150–151.

The advance of oracle-bone scholarship depends to a large extent upon the improvement of previous translations.[38] Disagreements about translation usually involve the actual wording (that is, what is to be seen on the bone), the meaning of the graphs, the grammar of the inscription, or its punctuation. Ideally, all scholars who work with Shang inscriptions which involve major problems of interpretation should justify their translations with notes or glosses.[39] Idiosyncratic and unsupported translations have no place in Shang studies.

3.5.1 *Grammar*

The rigorous study of oracle-bone grammar, depending upon a comprehensive analysis of all the attested divination sentences in their full context, has hardly begun. Scholars have assumed that the grammar of *chia-ku-wen* was substantially that of Chou dynasty *wen-yen* texts.[40] This assumption is generally correct—verbs follow their subjects and precede their objects, adjectives or adjectival clauses precede the nouns they modify,

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[37] The various "disaster" words (e.g., [S209.2]; [S184.3]; [S303.1]) studied by Mickel (1976) typify the problem; it is difficult for us to distinguish them with appropriate translations in the way the Shang presumably did (cf. ch. 2, n. 80). See too ch. 2, n. 7, on the meaning of **tieng*.

[38] Strikingly divergent translations have been offered for the same inscription. In some cases the context is insufficient for any firm determination; for example, do the two barely discernible graphs *shih hsiang* 矢象 (*Ping-pien* 170.1) mean "Promise ivory" or "Shoot arrows at elephants" (Serruys [1974], p. 34)? Does *Ho-pien* 153 (D) (S31.3) refer to the "summer solstice" or to the "arrival" of a person (Tung [1954a], p. 127)? In other cases, the meaning of particular graphs is in dispute. To choose some examples virtually at random: (1) Does *Hou-pien* 2.40.15 (S412.3) mean "Lady Ching's millet will not be harvested" (Serruys [1974], p. 35) or "At Fu Ching's millet planting, we will not perhaps offer libation" (cf. sec. 3.6.3)? (2) Does *K'u-fang* 1649 (D) (S1.2) mean "Do not make ascend and present as sacrifical victims 3,000 men" (Serruys [1974], p. 70 and n. 59) or "We should not raise (i.e., mobilize) 3,000 men" (Keightley [1969], pp. 66–69)? (3) Does *Hsü-pu* 1560 mean "If we amputate (a criminal's) foot, will there be death" (Hu Hou-hsüan [1973], p. 113) or (by analogy with the inscriptions at S12.4–13.3) "Ling will not die"? (4) Does *Hou-pien* 2.9.1 (S362.3, but wrongly cited as 2.7.1) refer to the appearance of a great new star or to the linking of a great new earthwork to the mountains (see the various interpretations quoted by Ikeda [1964], 2.9.1)?

[39] Good examples of glosses may be found in the commentaries to *Ping-pien*, *Hou-pien* (Ikeda [1964]), and *Jimbun*. Glosses for particular words are conveniently assembled in *CKWT* (sec. 3.3.1).

[40] E.g., Ch'en Meng-chia (1956), pp. 132–134.

and so on—but we should be wary of automatically imposing *wen-yen* grammar on every *chia-ku* text. First, because the oracle inscriptions were recorded several centuries prior to the earliest Chou texts we possess and may involve more archaic grammatical forms; second, because, being divination texts, they may manifest formulaic idiosyncrasies.[41]

The standard introduction to oracle-bone grammar, despite its unsystematic and dated nature, is still the chrestomathy of Ch'en Meng-chia, which leads the student through word order, particles, time words, measures, pronouns, verbs, modifiers, numbers, demonstratives, connectives, prepositions, auxiliary verbs, negatives, omissions and abbreviations, and sentence types.[42] For more sophisticated studies indicating the linguistic methodology to be employed and the kind of results to be gained, Takashima (1973) and Serruys (1974) should be consulted.[43] They deal with such matters as passives and causatives, conditional constructions, word order and stress position, and the significance of the various negatives.[44] It is to be hoped that work of this order will eventually lead to the writing of a modern *chia-ku-wen* grammar.

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41. The preverbal particle 其, for example, is antecedent to the modal *ch'i* 其 of later texts, but it has a characteristic function in the divination charges: it is associated with what are assumed to have been undesirable charges or those about whose desirability the diviner felt uncertain (cf. ch. 2, n. 124), and it thus appears to have weakened the force of a charge; it may have served to indicate conditional subordination of the following clause. For the details of what is a complex argument, see Takashima (1973), pp. 267–305; Serruys (1974), pp. 25, 48–58. Takashima (1976), p. 24, however, argues that "*ch'i* does not introduce subordinate clauses, and that the question of subordination must and can be deduced from context and sentence parallelism." I believe *ch'i* is best regarded as a particle of hypothesis and/or futurity (i.e., uncertain expectancy), and I translate it in the charges as "perhaps" (as in *Ping-pien* 8.2 [fig. 8]; 235.1 [fig. 11]; 247.2 [fig. 12]) and in prognostications either by "if" (*Ping-pien* 247.1 [fig. 12]; 248.7 [fig. 13]) or by future uncertainty (*Ping-pien* 19.9 [sec. 3.7.1.2]; 207.3 [sec. 3.7.4.2]; *Ching-hua* 2 [sec. 2.8]).

42. Ch'en Meng-chia (1956), pp. 85–134.

43. See too, Kryukov (1968) and (1973). Chou Hung-hsiang (1969) provides much data, especially on the question of omissions. On measure words, see Huang Tsai-chün (1964). The studies of Huang Ching-hsin (1958) and Kuan Hsieh-ch'u (1953) have been superseded.

44. Particular attention has been paid to *wu* 勿 (cf. n. 63), which seems to have been the strongest of the Shang negatives, with a sense of "must not," "do not." It is likely, as Takashima (1973), p. 190, suggests, that in some cases *wu* had an obligatory sense; the frequent use of *wu* in the charge before verbs of sacrifice, for example, can be better translated as "we need not (or should not) offer sacrifice" rather than "must not." It has also been proposed (Serruys [1974], pp. 44, 67; Takashima [1973], pp. 294–296, 399, n. 2) that *wu* be taken as a mark of subordination when it appears in the first of two clauses. Thus, *Ping-pien* 147.2, 勿乍邑帝若, on the left side of the plastron, would be translated "If we do not build a settlement, Ti will approve." And the presence of the *wu* would indicate that the matching, positive charge, *Ping-pien* 147.1 我其乍邑帝弗左若, on the right side of the plastron, should also be translated with a conditional first clause, "If we perhaps build a settlement, Ti will not assist and approve." Similarly, *Ping-pien* 442.7, 羽丁卯勿(求舞)亡其雨, on the left side of the plastron, would be translated as "On the next ting-mao, if we do not (perform a rain-seeking dance), it will not perhaps rain." This charge is matched by *Ping-pien* 442.6, 羽丁卯求舞㞢雨, on the right side of the plastron, "On the next ting-mao, if we perform a rain-seeking dance, there will be rain." In some cases, however, the "if" construction is less appropriate. To translate *Ping-pien* 12.2 (see sec. 3.7.1.2) as "This season, if the king does not follow Wang Ch'eng to attack the Hsia Wei, (we) will not perhaps receive assistance in this case" is unsatisfactory, for without the attack there would be no need for the assistance. In all cases where *wu* appears in the first of two clauses, therefore, I would suggest—and here I have benefited greatly from the advice of David Nivison (letter of 19 May 1976)—that the initial translation take *wu* in its obligatory sense, and that the positive, matching charge also be trans-

3.5.2 *Phonology*

The inscriptions tell us so little about their sound that "the problem of the pronunciation of Shang graphs" has been declared "nigh insurmountable."[45] Since there is no evidence of rhyme in the oracle inscriptions, the traditional and even modern approach to their study has been resolutely graphemic. The systematic study of Shang phonology has barely begun, and the inscriptions serve primarily as a testing ground for phonetic reconstructions derived from Sino-Tibetan or Archaic Chinese. The extent to which such reconstructions—on which no full agreement exists—may eventually assist our reading of the inscriptions is not yet clear.[46]

It must be remarked that the nature of the Shang script does not always facilitate our studies. Certain graphs, at least, appear to have had no inherent phonetic, or even semantic, value, but were used merely as shorthand notations, with the result that identical graphs could have widely different meanings and sounds in different contexts. Documented cases of such semantic and phonetic laxity are rare, but the possibility that one graph had two or more radically different meanings and sounds must always give us pause.[47] Similarly,

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lated in the obligatory or (if a *ch'i* is present) subjunctive mood. Thus, "We should not build a settlement (for if we do not) Ti will approve" (*Ping-pien* 147.2), matched by "We might perhaps build a settlement (but if we do) Ti will not assist and approve (*Ping-pien* 147.1); and "On the next ting-mao, we should not (perform a rain-seeking dance, for if we do) it will not perhaps rain" (*Ping-pien* 442.7), matched by "On the next ting-mao, we should perform a rain-seeking dance (for if we do), it will rain" (*Ping-pien* 442.6). I would propose that two basic patterns are involved. The first, more common one, is of the form: *wu* verb + (for if we do verb) + negative result (e.g., *Ping-pien* 442.7, above; *Ping-pien* 12.2, translated in sec. 3.7.1.2; *Ping-pien* 83.11; 96.26; 249.5; 300.2; 471.2; *Yi-pien* 3787; *Ts'ui-pien* 1113 [the last two S157.4]). The second, rarer pattern, is of the form: *wu* verb + (for if we do not verb) + positive result (e.g., *Ping-pien* 147.2 above; *Ping-pien* 199.12). The general rule would be: when a *wu* negative appears in the initial proposition, a negative must appear either in the result expected (the first pattern) or in the statement of hypothetical action supplied in parentheses (the second pattern); i.e., if the result expected is negative, the action supplied must be positive, and vice-versa. And it follows that for the first pattern the matching positive charge of the pair will be of the form: verb + (for if we do verb) + positive result; for the second pattern the matching positive charge will be of the form: verb + (but if we do verb) + negative result. These rules work for all the cases cited above. For a different understanding of these patterns and their illocutionary force, see Takashima (1976); (1977), pp. 11–18.

[45] Serruys (1974), p. 92, n. 6.

[46] Takashima (1973), appendix II, "The Problem of Phonology," discusses the systems of phonetic reconstruction, the reasons for preferring that of Li Fang-kuei (1971) to Karlgren's, the problem of defining archaic Chinese (ca. 700 B.C.) and whether or not it was phonetically uniform, and the need to discover "Western Chou" rhymes. Unless otherwise specified, I use, as a matter of convenience, the archaic reconstructions of Karlgren (all archaic reconstructions being preceded by an asterisk); *GSR* is readily available and conveniently arranged by word families. Tōdō (1969) may be consulted for suggested revisions of Karlgren's phonology and for its attempts to define the core meaning of the word families. Chou Fa-kao (1973) provides a useful tabulation of the archaic reconstructions proposed by Tung T'ung-ho, Karlgren, and Chou Fa-kao. Pulleyblank will in the future provide a systematic account of his own reconstructions.

[47] For example, the graph I might mean either **ńi̯əm* (modern *jen* 壬) or, after period II, **kung* (modern *kung* 工) (*CKWP*, ch. 5, p. 2a; ch. 14, p. 14b); the graph ʃ might mean either **ńi̯ĕn* (modern *jen* 人) or **piər* (modern *pi* 妣) (*CKWP*, ch. 8, pp. 6a, 1a); the graph ☽ or ☽ might mean either **ngiwăt* (modern *yüeh* 月) or **dzi̯ăk* (modern *hsi* 夕) (*CKWP*, ch. 7, pp. 6a, 7b–8a). Context would, in the first two cases at

the relative carelessness of the Shang engravers about details of graph shape, and the inclusion or omission of structural features, denies us, in most cases, any opportunity to connect epigraphic variations of the same graph with semantic or phonetic ones. Epigraphic variation, when consistent, is generally related not to sound or sense, but to changes in epigraphic style over time (table 26); far more rarely, it may be related to the positive and negative phrasing of the charge, or to its right or left placement on the bone or shell.[48]

Many Shang graphs can be analyzed in terms of five of the traditional six script elements (*liu shu*): pictures (*hsiang-hsing*), abstract symbols (*chih-shih*), compound ideographs (*hui-yi*), radical-plus-phonetic combinations (*hsing-sheng* or *hsieh-sheng*), and loans (*chia-chieh*) may all be identified. This suggests that the written script was already mature by the historical period. Applied to the oracle-bone graphs, these classifications are, of course, frequently subjective and anachronistic. In many cases we lack the phonological information to distinguish, say, a compound ideograph from a radical-plus-phonetic combination. And some words were written with graphic variants of more than one script type.[49] Further, the loans are generally not true loans in which "the character in question . . . does not have its ordinary meaning but stands for another word, the reading and meaning of which it adopts."[50] Most of the so-called loan words can more properly be regarded as graphic abbreviations. Thus 正 is regarded as a loan for 征, 匕 as a loan for 妣, and 易 as a loan for 錫.[51] Modern scholars must supply the radicals of later times in order to establish the semantic value of the Shang word—such an approach is essential to deciphering the script at all[52]—but it is anachronistic to suppose that the Shang wrote one word and meant another. They simply wrote the word that way.

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least, prevent any confusion, but such shorthand notations suggest that we cannot always trust the graphs for phonetic information. For the possibility that some graphs might have been notations for a series of ritual actions, indicating, for example, the vessels and implements to be used, rather than serving as word signs, consider the evidence presented by Lefeuvre (1971); for a possible Western Apache analogy, see Basso and Anderson (1973).

[48] For examples, see the cases discussed in ch. 5, n. 34. For one instance in which a graphic distinction appears to have had semantic, and perhaps phonetic, significance, see ch. 1, n. 71.

[49] Li Hsiao-ting (1968), pp. 91–95, gives examples of each script type. Out of a sample of 1,226 graphs, he finds that 277 (23 percent) were pictures, 20 (2 percent) were abstract symbols, 396 (32 percent) were compound ideograms, 334 (27 percent) were radical-plus-phonetic, 129 (11 percent) were loans, and 70 (6 percent) could not be categorized. The fact that he found no instances of semantic extension (*chuan-chu*) may presumably be explained by our frequent inability to identify the original meanings of the Shang graphs that might have been "extended." On the prevalence of radical-plus-phonetic graphs, cf. Barnard (1963), pp. 220–221.

[50] Karlgren (1963), p. 2.

[51] These are among the 129 loans cited by Li Hsiao-ting (1968), pp. 93–94. He subsequently argues (p. 101) that the bone graph was not a true loan for *tsu* 祖, but a true picture, the radical being added later to avoid confusion with *ch'ieh* 且. But it is hard to be sure that many of his loan examples do not fall into the same category. For one case in which a picture graph (presumably its own phonetic) became in period V a radical-plus-phonetic with an additional signific-plus-phonetic (?) added, see table 26, no. 15.

[52] This approach cannot always yield certain results. That the sacrifice term (**mlộg*, modern *mao* 卯) (S507.4–508.3) was an abbreviation for **lịôg* (modern *liu* 劉), "to slaughter, kill, cut up" (Serruys [1974], p. 92, n. 6), is phonetically and graphically plausible. But it remains only plausible until a full or transitional form of the graph is found in similar context.

True loans which can assist scholars in their attempts to decipher the script are few.[53] The fact that *_tieng_ □ (modern _ting_ 丁) and *_tieng_ (modern _ting_ 鼎) were interchangeable with the prefatory confirms the view that the verb "to divine" was pronounced like *_tieng_ and that the graph was a simplified depiction of a _ting_ cauldron. Any attempt to determine the meaning of the verb must take that phonetic and graphic evidence into account.[54]

The equivalent usage or substitution of (modern _yu_ 又) for has also provided valuable clues about the probable sound and meaning of , a Shang graph which has no evident successor in Chou texts.[55] Similarly, the late-period substitution of (modern _wang tsai_ 亡𢦔) or , "there will be no disaster," for the routine (modern _wang tsai_ 亡災) of the early inscriptions indicates a semantic and phonetic equivalence; all may be read _wang tsai_, with the serving as phonetic in the late period graphs.[56]

The most famous case of what is thought to be phonetic substitution is one in which the Shang engraver wrote *_χwâr_ (modern _huo_ 火) instead of , "disaster." Three times on the same bone fragment the charge reads, "in the next ten days there will be no disaster," but in the one case it reads, "in the next ten days there will be no fire" (fig. 19).[57] If we assume that this was a scribal error rather than a case of deliberate topic substitution, and that the scribal error may be explained in terms of phonetic identity (as well as possible semantic equivalence), it may then be argued that must have been pronounced like *_χwâr_.[58] This accords fairly well with the usual interpretation of as *_g'wâ_ (modern _huo_ 禍), "disaster". In later periods, on the other hand, , "disaster," might also be

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[53] S577–588 lists some 320 cases of graphs which appear to have been used interchangeably. The majority, however, involve trivial epigraphic variations or abbreviations; some indicate semantic equivalence, if not identity (as with the disaster words at S579.1–580.1); some merely indicate topic substitution. Probably less than a dozen of the cases are phonetically useful. For a criticism of some of Shima's pairings, see Li Yen (1969). Chin Hsiang-heng (1967), p. 12a, also lists various "loans" in the inscriptions.

[54] Cf. ch. 2, n. 7. The relevant inscriptions are: (1) _Ch'ien-pien_ 8.6.3 and 8.12.4; _Yi-pien_ 1834 and _Ch'ien-pien_ 8.6.3 (the _Ch'ien-pien_ rubbing is hard to read; Shima's version is accepted by Li Yen [1969], p. 197, but a different reading is given by Yeh Yü-sen [1934], ch. 8, p. 5a, and Li Hsüeh-ch'in [1958], p. 53); and _Yi-pien_ 1010 (all S577.1); it may be noted that Li Hsüeh-ch'in (loc. cit.) speculates that all these bones were divined in the same seventh month; (2) _Yi-pien_ 8695 and 8888 (both from pit YH 251 and probably from different plastrons in the same set of five) and other examples at S396.1–4. See too _Ping-pien_ 381, _k'ao-shih_, pp. 445–446.

[55] For the relevant scholarship, see n. 85 and the note to table 26, no. 4. On the phonological problems see, in particular, Takashima (1973), pp. 30–31. The equivalence is particularly clear when the graphs were used as connectives in numbers, which might either be written 十年㞢五 "(ten years and five =) fifteen years" (_Hsü-pien_ 1.44.5 [S197.1, but wrongly cited as 1.44.3]) or 十牢又五 "(ten penned cattle and five =) fifteen penned cattle" (_Ts'ui-pien_ 579). See the numerous examples in Ch'en Meng-chia (1956), pp. 108–110.

[56] For the relevant scholarship, see the note to table 26, no. 3.

[57] _Ts'ui-pien_ 1428 (S579.1).

[58] Other evidence may give support. The phrase 其㞢火, "Perhaps there will be fire" (_Chia-pien_ 3083.1), appears analogous to the phrase 其㞢 , "Perhaps there will be disaster" (_Ping-pien_ 269.8, and other cases at S304.3–305.1). The 㞢乍 of _Yi-pien_ 5349 (S303.2) may be analogous to the 乍火𢦔 of _Ping-pien_ 302.11–12 (S173.3). Cf. Mickel (1976), pp. 72–75. Li Yen (1967), pp. 21–26, also cites other cases of equivalence, but I cannot accept many of his readings.

written as , a graph that meant "bone," **kwət* (modern *ku* 骨) in period I.[59] This suggests another line of phonetic enquiry, a line reinforced by the fact that by period V the word for disaster was written in some contexts as (see fig. 10), presumably the Shang form of **g'w̃ɛt* (modern *hua* 猾), "disturb, trouble."[60] While reconstructions such as **χwâr* and **g'wɛt* do not permit us to define the word with precision, they do suggest its phonetic range. And they appear to exclude certain interpretations, such as that of T'ang Lan, who had argued that the graph depicted a **di̯ôg* 卣 -type vessel, used as a loan for **g'i̯ôg* (modern *chiu* 咎), "fault, blame, calamity."[61] Such Shang errors or substitutions, fruitful for the modern scholar, are less numerous than we would wish, but future studies of this sort may eventually permit us to identify the sounds of some early words and the way they evolved between, say, period I, period V, and the time of Karlgren's Archaic Chinese, (ca. 700 B.C. [?]).

If the consistent phonetic value of certain graphic elements could be demonstrated, scholars deciphering unknown oracle-bone graphs would have a phonetic clue to their meaning. But, given the maturity of the written script by the historical period, it is likely that whatever identity may have once existed between sound and phonetic symbol had in many cases been eroded. Since the Shang graphs are virtually mute, research into such questions must be focused outside the oracle inscriptions themselves. That is to say, we can only deduce the sound of Shang graphs from reconstructions of Chou phonology or by studying cognates in Tai, Burmese, Tibetan, and related languages. Such studies may eventually permit more precise reconstructions of Shang, and even pre-Shang, phonology, but such reconstructions can only be tested against the oracle inscriptions;[62] they cannot be generated from them.

The situation is somewhat different when phonetic and grammatical studies are combined which make it possible to suggest, for example, that certain phonetic distinctions in the negatives had semantic emphasis.[63] But once again, the number of words that lend themselves to such studies is small.

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[59] *CKWT*, p. 1497; S306.2–3.

[60] *CKWT*, p. 3126; S217.4. On the interchangeability of and see *Jimbun* 1162, *shakubun*, p. 365, n. 1, and the inscriptions at S217.4; 303.2.

[61] *T'ien-jang k'ao-shih*, pp. 7a–11a. As Mickel (1976), p. 71, notes, this hypothesis may be rejected on graphic as well as phonetic grounds.

[62] Pulleyblank (1975), for example, depending on a revised table of *Shih-ching* rhyme categories and the phonetic transformations undergone by words in related Sinitic languages, reconstructs the phonetic "shape" of the twenty-two cyclical graphs in Old Chinese and links them to the sounds and symbols of the Semitic alphabet. The oracle inscriptions themselves cannot be used to test such an approach. Pulleyblank argues, for instance, that the graphic element represented the initial sound **sʲ*. The oracle-bone graphs **si̯ĕn* (or **sjien* [Chou Fa-kao (1973), 3484]) (modern *hsin* 新) or **śiang* (modern *shang* 商), which contain this element, presumably as a phonetic, support such a view. But reconstructions like **si̯ĕn* or **sjien* were derived quite independently of any information in the oracle inscriptions.

[63] Takashima (1973) provides the best introduction to the subject, the methodology to be used, and the difficulties involved. In this study he discerns semantic regularities in the initials, vowels, and finals of the negatives of the Wu Ting period (the phonetic reconstructions are his own): **pjəg(x)/pu* 不; **mjəgx/wu* 毋; **pjət/fu* 弗; and **mjət/wu* 勿. Following the lead of Serruys (1969; cf. 1974), he finds that **pjəg(x)* was used

3.6 *How to Read the Graphs on a Bone or Shell Fragment*

Nothing appears more arcane, at first glance, than an oracle-bone rubbing. I will try to demystify it in this section with a step-by-step analysis of how an actual turtle-shell piece, composed of two fragments (fig. 20), may be identified, deciphered, and placed in context. The flow chart (fig. 21) summarizes the possible approaches.

3.6.1 *How to Identify the Fragment*

Orienting the piece is rarely a problem since rubbings are normally printed correctly.[64] If necessary, orientation is best done either by identifying certain graphs, or graph elements, whose correct orientation is known, or by orienting the crack numbers (near the top of the *pu* crack; sec. 2.4) and crack notations (near the bottom of the *pu* crack; sec. 2.6) correctly. In figure 20, the crack number 6 and the *shang-chi* 上吉 at the left are readily placed. The *pu* cracks all run left; and the crack numbers 6, 7, and 8 run right; these clues, together with the general configuration of the piece, lead us to suppose that it comes from the right side of a shell in the region of the hyoplastron or hypoplastron (fig. 3).[65]

As we have seen, inscriptions were written from top to bottom (sec. 2.9.4), but it is necessary to determine in this case, as in all others, whether the inscription should be read sideways and then down (in fig. 20, graphs 1, 4, 6, 2, 3, 5, 7; or 6, 4, 1, 2, 7, 5, 3) or read down, with the columns read left to right (graphs 6, 7, 4, 5, 1, 2, 3) or right to left (graphs 1 to 7 read in normal sequence).[66] The fact that inscriptions generally run against the cracks (sec. 2.9.4) suggests that the inscription in this case should be read from left to right, but, as we see almost immediately from the position of the preface, we are dealing with a common exception.[67]

The first, virtually automatic, step in identifying and translating any inscription is

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basically for negating intransitive/passive verbs and **pjət* for negating transitive/causative verbs. He also finds that the **P*-type negative was used when the situation involved natural forces or other phenomena beyond Shang control, while the **M*-type was used when an element of human will or control was involved. Nivison (1977) provides support for some of these conclusions. Mickel (1976) has undertaken a similar study of the "disaster" words of the Wu Ting period (cf. ch. 2, n. 80, above).

[64] Fragments have been printed upside down, especially in the earliest collections. See, for example, *T'ieh-yün* 23.4, 28.4, and the other cases listed in Yen Yi-p'ing's preface to the Yi-wen (Taipei, 1959) reprint of *T'ieh-yün*. Errors of this sort appear with some frequency in secondary works, e.g., Eisenberger (1938), p. 67 (the inscription is probably fake); Ch'en Chih-mai (1966), fig. 4a (whole plastron inverted); William S. Y. Wang (1972), p. 53 (bottom two fragments, left column, inverted).

[65] See ch. 2, n. 122.

[66] There is also the possibility that the graphs on a fragment do not belong to the same inscription (as defined at ch. 2, n. 1) but are parts of two or more separate inscriptions; as we shall see, that is not the case here.

[67] See ch. 2, n. 126.

to identify the cyclical graphs and, if there is one, the diviner's name recorded in the preface. A glance at table 10 will indicate that graphs 1 and 2 may be read as *chia-hsü* 甲戌. The odds are that the next graph will be the diviner's name; graph 3 is, in fact, broken, but we can see that it is composed of the roof element ∩, containing a horizontal line with an inclined stroke below it. Studying the list of diviners' graphs at S557–576, we find the names of three diviners which contain a roof element: (S557), (S566), and (S572). Of these, only the first seems to match the elements we have.[68] The modern transcription of this diviner's name, Pin 宆 or 賓, may readily be obtained by consulting commentaries (listed in table 9) to any of the inscriptions listed at S557–558.[69]

So far, then, we know that the inscription starts: "On chia-hsü (day 11), Pin..." Since this part of the inscription lies near the edge of the fragment, it is probable that the original preface was fuller, with a *pu* 卜 between graphs 2 and 3, just to the right of the broken edge, and with a **tieng* below graph 3 so that the restored inscription would start: "[Crack-making] on chia-hsü (day 11), Pin [divined]...."[70]

To identify the piece, it is necessary to select a key graph (that is, one that is not a particle or frequently used, and for which Shima is likely to provide a complete list of occurrences) and locate it in *Sōrui* (sec. 3.3.2). In this case, graphs 5, 6, or 7 may all serve. Starting with graph 5, we first separate its component elements. The bottom of the graph is missing, but enough remains for us to identify the two elements as and . Shima's radical chart (S590, or the endpapers) indicates that graphs containing either of these elements are listed on page 4 of his index. Turning to page 4, it is more efficient to search through the shorter list of graphs containing rather than the longer list containing . The graph in question may be found in the third row from the bottom, the twelfth entry from the right (the graph indexed is laterally inverted, , but such rotation of graphs about their central axis was common;[71] the word is the same despite the different graphic orientation). Thirteen inscriptions containing this graph are transcribed at S142.3 (reproduced as fig. 22).

The most likely candidate is *Yi-pien* 605, the only one to contain the right cyclical date and the name of the diviner Pin. Shima's transcription supplies the *pu*, but this is not justified by the rubbing; more seriously, his transcription does not contain characters 6 and 7, but, as the revised edition of the *Sōrui* (1971) indicates, *Yi-pien* 605 has been joined

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[68] The other two diviners may be eliminated by checking the single inscriptions (*Yi-chu* 503 and *Ch'ien-pien* 6.31.1) in which they appear; neither of these is our fragment.

[69] E.g., Ikeda (1964), 1.2.15; *Ts'ui-pien* 36, *k'ao-shih*, p. 10b; and *Ping-pien*, plate 29, *k'ao-shih*, p. 59, give a reading of 宆. *Chien-shou* 7.14, *k'ao-shih*, p. 17b, and *Chia-pien* 59, *k'ao-shih*, p. 12, give 賓.

[70] This is the prefatory formula most commonly used by Pin; see table 7, no. 1.1. Other possible formulas from the same table would be nos. 1.1.1, 1.4, 1.4.1, etc. Some of these, such as nos. 1.1.1 or 2.1, are unlikely, for they are RFG formulas. Pin was a period I court diviner. (His period may be learned from the glosses to *Chia-pien*, *Ping-pien*, etc., or from Jao [1959], pp. 241–253; it may also be understood from the fact that the diviners at S557–576 are listed chronologically and that Pin is the first. On the court diviners and the RFG, see sec. 2.2.1.1).

[71] Cf. ch. 2, n. 125.

with other fragments to form *Ping-pien* 390. A glance at that rubbing indicates that we have indeed identified our two fragments—*Yi-pien* 603 + 605.[72]

3.6.2 *How to Identify the Graphs*

The revised edition of *Sōrui* (1971) contains modern transcriptions, together with cross references to *Chia-ku wen-tzu chi-shih* (sec. 3.3.1), for 840 of its entry heads. Thus, the entry head for (S142.3) tells us that the graph is not found in *Shuo-wen* and refers us to *CKWT*, p. 3708, which, when we turn to that page, merely gives an incomplete list of occurrences and the modern transcription *chi* 姞 with no discussion. Turning back to the rubbings listed at S142.3 (fig. 22) we look for commentaries (table 9) published since *CKWT* (1965). The *Ping-pien* joinings of the *Yi-pien* fragments are the most promising lead. On the theory that if Chang Ping-ch'üan glosses a graph he does so on its first *Ping-pien* occurrence, we turn to *Ping-pien* 122, *k'ao-shih*, p. 182, where he identifies the graph as *chi* 姞, the name of a place, probably to the west of the Shang, used for hunting and farming.[73]

That we are dealing with a place name is confirmed by graph 4. Shima's radical chart indicates that is a radical in itself, the entries being given on S498 ff., where the graph is identified as *ts'ai* 才 (*CKWT*, p. 2049) or *tsai* 在 (*CKWT*, p. 3991). Consulting *CKWT*, p. 2049, we are told that *ts'ai* 才 had the sense of *tsai* 在 in oracle-bone writing. Graphs 4 and 5, therefore, may be taken to mean "in Chi".[74]

Graph 6, 田, is also one of Shima's radicals. The entries start on S289, where the modern transcription *t'ien* 田 is given. *CKWT*, pp. 4025–4026, quotes the *Shuo-wen* defini-

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[72] The *Ping-pien* tissue overlay labels the fragments A, B, C, etc. The corresponding *Yi-pien* rubbing numbers are indicated at the bottom of that overlay as well as at *Ping-pien* 390, *k'ao-shih*, p. 454. In the event that only the first edition (1969) of *Sōrui*, which does not indicate the *Ping-pien* rejoinings, is available, further research is needed to identify the fragment containing the two missing graphs. Two routes are possible: First, starting with graph 6, Shima's radical chart indicates that 田 is a radical itself and that the entries start on S289. At S289.2 we find a list of inscriptions containing the compound 田 , our graphs 6 and 7. *Yi-pien* 603 might be our missing fragment. Since *Yi-pien* 603 was assigned a rubbing number close to that of *Yi-pien* 605, a connection is plausible. This possibility is supported by the registration numbers 13.0.890 and 13.0.888 printed under the rubbings (for the meaning of the registration numbers, see ch. 1, n. 31), which suggest that the fragments lay close together in the pit, though on this point, cf. ch. 4, nn. 184, 186. A study of the *Yi-pien* rubbings confirms that the two fragments would fit together in the configuration we are trying to identify. Alternatively, we may use the index to *Yi-pien* fragments rejoined in *Ping-pien* (T'ang Chien-yüan [1969] and [1974]) to discover that *Yi-pien* 603 and 605 were incorporated into *Ping-pien* 390.

[73] In fact, *Ling-shih* 113, *k'ao-shih*, p. 34b (published in 1959), identifies Chi as a place name. *CKWT* overlooked this gloss. Once we know its modern form, the identification of Chi as a place name may also be confirmed by consulting Jao (1959), place name index, p. 27.

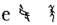
[74] In the event that the 1971 edition of *Sōrui*, with its modern transcriptions and references to *CKWT*, is not available, one may arrive at the same conclusion by turning to a rubbing that has a modern transcription (table 9 lists such collections). Thus S498.4 might send us to *Chia-pien* 1132, which, as the *k'ao-shih* tells us, has been combined with *Chia-pien* 1110. The *k'ao-shih* for 1110 gives the modern form *tsai* 在.

tion, ". . . to sow grain is called *t'ien*," and indicates that in the oracle inscriptions *t'ien* generally had the meaning of "hunt" or "field."

Graph 7, , may be found under the "short-tailed bird" radical on page 8 of the *Sōrui* index, which leads us to S232.3 ff., where two modern transcriptions, *huan* 雈 and *kuan* 觀 are given. Li Hsiao-ting (*CKWT*, pp. 1299–1300) argues that both forms were used for *kuan* 觀, "to observe."[75]

So far, then, we may transcribe the inscription as:甲戌[卜]㝊[冎]」在媍」田觀.[76]

3.6.3 *How to Decipher the Inscription*

We may initially translate the charge as transcribed: "In Chi, take to the field and observe," with *t'ien* having the sense either of "hunt" or, following *Shuo-wen*, "sow crops." This translation must be refined by studying the context of related inscriptions. Returning to S142.3 (fig. 22), we see that a majority of the inscriptions relating to Chi contain the phrase . Shima's index (p. 10, row 10) sends us to S463.2, where the entry head tells us that the first graph is *shou* 受 or 授 and where we are referred for this compound to S194.2, which tells us that the second graph is *nien* 年; over 250 occurrences of the phrase are listed at S195.1 ff. Consulting *CKWT*, pp. 2366–2367, 2368, we find that in the inscriptions *nien* has the sense of "good harvest" and that *shou-nien* is a prayer to "receive harvest."[77]

The majority of the inscriptions which mention Chi at S142.3 (fig. 22) contain the phrase "at Chi receive harvest." None of them refers to the capture of animals. It is reasonable to assume, therefore, that Chi was a farming rather than hunting area and that *t'ien* in the present inscription should be taken in its agricultural sense. The rightness of this interpretation is confirmed by the headings at S232.4 where we find graph 7 forming compounds with (=*shu* 黍, "millet, plant millet"), (=*nien* 年, "harvest"), and *t'ien* 田. Our tentative translation now reads, "At Chi, sow crops and observe."

But what does *kuan* (or *huan*?), graph 7, which we have translated as "observe," mean? In questions of this sort, the right answer may require days of research. One possible

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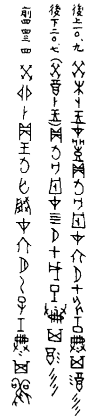
[75] Li also notes (*CKWT*, p. 1301) that the graph might be used as the name of a place or person. That is the view adopted by Chang Ping-ch'üan in his transcription for *Ping-pien* 390.1, *k'ao-shih*, p. 453, and he would apparently translate as "In Chi hunt (or cultivate [?]) Huan." But there is no reason for thinking Huan to be in or near Chi. The translation may be rejected.

[76] Since we suspect that a **tieng* is missing below graph 3, it is also possible that one or more graphs are also missing below graphs 5 and 7. In this case, however, *Ping-pien* 390, which supplies the fragment below (*Yi-pien* 726), shows there are no graphs missing from the charge.

[77] Divinations about receiving harvest and about other agricultural matters form one of the categories (*pu shou nien* 卜受年) of Jao's concordance (1959); see pp. 255–259 for the agricultural inscriptions of the diviner Pin. Our inscription is not listed there because Jao (1959) was published before the appearance of *Ping-pien* 390 (1965). Jao, therefore, was working with the two fragments *Yi-pien* 603 and 605; one contained the phrase *t'ien kuan*, with no identifying diviner under which to classify it, the other contained the diviner's name and *tsai chi*, but no classifiable subject matter.

solution might involve the following path. Turning first to the examples of interchangeable graphs listed at the rear of *Sōrui*, we find (S586.2) and occurring in similar contexts on two occasions. The fact that the double-mouth element might be omitted in oracle-bone graphs had also been noted by Lo Chen-yü.[78] This enlarges the scope of our enquiries. In the first place, it enables us to look at glosses to inscriptions containing (S232.3) as well as . Ikeda (1964), 2.6.6 and 2.6.9 are particularly useful, giving references to Ch'en Meng-chia (1956), p. 535, Jao (1959), p. 97, and so on. Useful too is the gloss to *Jimbun* 344 (S232.4),[79] which refers in turn to Shima (1958), p. 327. We could also have arrived there by using the index to Shima (1958), p. 532, and locating the graph . Shima confirms the identity of and , and in his discussion on pages 327 and 340–342 demonstrates the existence of two agricultural rituals: the first written (*shu kuan* 黍灌), a ceremony in which millet was planted and wine libation poured to the spirits, the second written ⊞ (*t'ien kuan* 田灌), a ceremony in which the field was cultivated and wine libation offered. Following Shima, we may retranslate the inscription as “[Crack-making] on chia-hsü (day 11), Pin [divined]: ‘In Chi, cultivate the field and offer wine libation.’”[80]



This translation may be “kept on ice” in the hope that subsequent reading in the inscriptions will provide more evidence. For example, we might notice weeks later that the identification of as *kuan* 灌, “offer libation,” is supported by a comparison of *Ch'ien-pien* 4.43.4 (S417.3) with *Hou-pien* 1.10.9 and 2.20.7 (S417.4), where, in a similar ritual formula, the of the first case is replaced by *chiu* 酒, “offer wine libation, in the second two cases. The substitution suggests that *kuan* and *chiu* had similar meanings.

The above description represents only one blundering and pedestrian route through the labyrinth of oracle-bone translation. Shortcuts, as well as other routes, would have been taken by the experienced traveler.[81] One shortcut would involve more reliance on secondary works. Once we suspect, for example, that we are dealing with an inscription about agriculture, it would be wise to turn to chapter 16 of Ch'en Meng-chia (1956) which deals with the subject; he discusses *t'ien* in the sense of “to cultivate” on pages 538–549. Similarly, Shima (1958), pp. 493 ff., has a long section on agriculture, starting with a discussion of *t'ien*.

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[78] Quoted by *CKWT*, p. 1297. Lo Chen-yü's opinion is also quoted by *Chia-pien* 444, *k'ao-shih*, p. 69, which could have been found by looking at *Chia-pien* 536.3, *k'ao-shih*, p. 82 (from S232.3).

[79] Like Ikeda (1964), *Jimbun*, with its extensive glosses, is a major reference. Since a separate index volume gives the location of every graph appearing on the 3,256 fragments in the collection, it is not necessary to use *Sōrui* as a guide to its glosses. In this case, *huan* 雚 is one of the 540 *Shuo-wen* radicals by which the *Jimbun* index is arranged. The graph may be found on p. x of the index volume, which directs us to p. 57 of the index text. The numbers in boldface type refer to *Jimbun* entries where the graph is glossed; light type indicates its appearances without gloss.

[80] The editors of *CKWP* had also proposed that referred to a *kuan* 灌 sacrifice. See their gloss to *Ts'ui-pien* 147 (*CKWP*, ch. 4, p. 12b, col. 4).

[81] One suggestion to make *CKWT* more manageable: toward the end of each entry, Li Hsiao-ting gives his own conclusions about the various and often conflicting interpretations presented. These conclusions are signaled by a paragraph starting, in the standard manner of classical commentaries, with the character *an* 按, “I note. . . .” It is frequently best to start here and then work back through the entries which Li discusses.

There is no sure Ariadne to guide us. *CKWT*, for instance, is not comprehensive; *Jimbun*'s glosses are not complete and are out of date. No gloss is infallible. Scholars have to plunge into the labyrinth for themselves, using the chart provided by figure 21. The best guide—despite occasional errors, variant transcriptions, and omissions—is Shima's *Sōrui*. *Sōrui* assembles the inscriptions; it guides us to *CKWT* and to the modern glosses; it shows how a word was used in context. The rest we must do for ourselves. And we do it by developing philological expertise, by studying the examples of graphic and semantic evolution that commentators have proposed, and, above all, by reading as widely as possible in the inscriptions themselves.

3.7 *A Plastron Set*

Translation not only involves placing inscriptions in the context of other inscriptions. It also involves understanding the role that divination and the carving of the inscriptions played in Shang culture; it involves understanding, as far as we can, what the diviner thought he was doing.[82] It is instructive in this regard to examine one set of inscriptions in detail in an initial attempt to explore the rationale underlying Shang divination and to indicate the kinds of questions that we need to ask.

I select the set of inscriptions carved on the five plastrons *Ping-pien* 12–21 because, when the charges on the front are considered together with the subcharges (sec. 3.7.4.2) and prognostications on the back, they form one of the most informative multiple-plastron sets we now possess. (The fact that these five plastrons form a set [sec. 2.5] is demonstrated by the similarity of the divination charges and the ordinal sequence of crack numbers [sec. 2.4], which are all 1 on *Ping-pien* 12, all 2 on *Ping-pien* 14, and so on.)

The analysis which follows should, if possible, be studied with the *Ping-pien* rubbings and Chang Ping-chüan's *k'ao-shih* at one's side; I do not always follow his interpretation, and I make no attempt to reproduce his extensive notes about the identity of the various figures and statelets involved. My concerns are primarily with the divination process.

3.7.1 *The Inscriptions*

3.7.1.1 *Duplication and Abbreviation*

With the exception of minor variations in layout and epigraphy, inscriptions 1, 2, 5, 8, 9, and 10 on the front of the shells and 1 through 8 on the back were "carbon copies," reproduced without abbreviation on all five plastrons.[83] The other inscriptions on the front abbreviate the preface or the name of Chih Kuo but with no evident regularity. The general impression is that there was a desire to reproduce each inscription fully on each plastron but that it was not essential to do so.[84]

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[82] For a preliminary analysis of these issues, which will be considered more fully in *Studies*, see Keightley (1973a) and (1975c). Cf. too, Takashima (1976), who proposes a rationale for some of the charges in the set discussed below.

[83] This conclusion depends, in several cases, on supplying graphs that would, it is assumed, have appeared on missing shell fragments. Due to the roughness of the inner surface of the shell, it is not always easy to see the graphs in the rubbings of the plastron backs; in these cases I rely on the *k'ao-shih*.

The records about the source of the shells or the results of the divination were not duplicated or abbreviated in the same way as the charges. Thus, the marginal notations (*Ping-pien* 13.9; 21.9) appear only on the back of the first and last shells; and the two prognostications appear only on *Ping-pien* 17 and 19, the back of the third and fourth shells.

3.7.1.2 *Translation*

Given the identity or similarity of the divination sentences, we may provide a combined translation for the set as a whole. Taking the inscriptions on *Ping-pien* 16/17 (figs. 15 and 16), the most complete plastron, to be representative, and supplying graphs from the other four plastrons as necessary, I transcribe and translate the full text of the inscription set as follows:

Reconstructed Chinese Text
for *Ping-pien* 12, 14, 16, 18, 20

(1) 辛酉卜㱿貞今𡆥王从望乘伐下危受㞢又⌋
(2) 辛酉卜㱿貞今𡆥王勿从望乘伐下危弗其受㞢又∟
(3) 辛酉卜㱿貞(今𡆥)王从沚聝(伐巴方受㞢又)∟
(4) 辛酉卜㱿貞(今𡆥)王勿从沚聝(伐巴方弗其受㞢又)⌋
(5) 辛酉卜㱿貞(今𡆥)王叀沚聝从(伐巴方受㞢又)∟
(6) 辛酉卜㱿貞(今𡆥)王勿隹沚聝从(伐巴方弗其受㞢又)⌋
(7) 貞㞢犬于父庚卯羊∟
(8) 祝亻之疾齒鼎龍
(9) 疾齒龍
(10) (疾齒)不其龍

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[84] Dealing with the fronts of the shells and supplying missing graphs in each case: sentence 3 was recorded with nine graphs on *Ping-pien* 12 and 14, with five graphs on *Ping-pien* 16 and 20 (the *kan-chih* date, diviner's name, and *pu* graph being omitted), and with eight graphs on *Ping-pien* 18 (Chih Kuo's name being abbreviated to Chih); sentence 4 was recorded with ten graphs on *Ping-pien* 14, the second plastron in the set, but with six graphs on the other four shells (which omit the *kan-chih* date, the diviner's name, and *pu* graph; the *k'ao-shih* for *Ping-pien* 18.4 is in error); sentence 6 was recorded with eleven graphs on all but *Ping-pien* 12, where Chih Kuo was again abbreviated to Chih; sentence 8 was recorded with seven graphs on all but *Ping-pien* 12, where a one-graph preface, **tieng*, was added to make a total of eight graphs. Ranked in order of completeness, *Ping-pien* 14, the second plastron in the set, has ninety-eight graphs; *Ping-pien* 12, the first plastron, has ninety-four; *Ping-pien* 18, the fourth plastron, has ninety-three; and *Ping-pien* 16 (fig. 15) and 20, the third and fifth plastrons respectively, both record the same ninety graphs. But even though *Ping-pien* 14 has the fullest record, *Ping-pien* 12 has a fuller record (by one graph) of sentence 8. No principle appears to explain this pattern of abbreviation; it was apparently due to carelessness. On the various kinds of abbreviation employed by the Shang engravers, see Chang

Translation
of *Ping-pien* 12, 14, 16, 18, 20

	PAIRS OF COMPLEMENTARY CHARGES	
	Negative charge (left side)	Positive charge (right side)
(Preface:)	(2) Crack-making on hsin-yu (day 58), Ch'üeh divined:	(1) Crack-making on hsin-yu (day 58), Ch'üeh divined:
(Charge:)	"This season, the king should not follow Wang Ch'eng to attack the Hsia Wei, (for if he does, we) will not perhaps receive assistance in this case."[85]	"This season, the king should follow Wang Ch'eng to attack the Hsia Wei, (for if he does, we) will receive assistance in this case."
(Preface:)	(4) Crack-making on hsin-yu (day 58), Ch'üeh divined:	(3) Crack-making on hsin-yu (day 58), Ch'üeh divined:
(Charge:)	"(This season) the king should not follow Chih Kuo (to attack the Pa-fang, for if he does, we will not perhaps receive assistance in this case)."[86]	"(This season) the king should follow Chih Kuo (to attack the Pa-fang, for if he does, we will receive assistance in this case)."

Ping-ch'üan (1956), pp. 246, 253–254; Chou Hung-hsiang (1969), pp. 60–69; Li Ta-liang (1972), pp. 134–169. Li notes (pp. 137, 162–163) that it is the later inscriptions in a set that are likely to be abbreviated; but that is not true in this case. He also notes (pp. 138, 157) that when three or more inscriptions refer to the same topic, the preface and charge are both frequently abbreviated. It is probable that in extreme cases, the entire inscription could be abbreviated out of existence; see ch. 2, n. 32, above, on inscriptionless cracks.

85. Chang Ping-ch'üan reads the bone graph as *ch'un* 春, "spring." Chao Feng (1976), p. 222, reverting to an earlier theory of Yang Shu-ta 楊樹達, argues that the graph (composed, in his view, of *k'ou* 口 plus *ts'ai* 才) was a loan for *tsai* 載, "year." *CKWT* (pp. 1972–1974) rejects both readings and argues, with Yü Hsing-wu (1940), pp. 6a–8b, that the graph was ancestral to **d'iôg* or **t'iôg/ t'iao* 條, which is close in sound to **ts'i̯ôg/ch'iu* 秋, "autumn." A study of all the inscriptions containing (S187.2–4) reveals that the period to which it applied extended from at least the eleventh to the fifth Shang month. "Season" is offered as a functional translation. For the reason why I translate these charges in the obligatory mood, see n. 44. The phrase *shou yu yu* 受㞢又 has been much discussed. There is little doubt that the final graph stands for *yu*, 佑 or 祐, "(divine) assistance." As to the 㞢 (or, in later oracle texts, ; see table 26, no. 4.3), I follow the view that it has an attributive, pronominal function. This is the solution briefly suggested by scholars such as Wu Ch'i-ch'ang ([1971], pp. 10–11) and Ch'en Meng-chia ([1956], pp. 96–97); it is well and extensively supported by David Nivison (1977). In this view, the *shou yu yu* of this inscription would mean "receive this assistance" (i.e., assistance in this attack against the Hsia Wei); *shou yu nien* 受㞢年 would mean "receive this harvest" (i.e., the one divined about, as in fig. 9). For the alternative theory (discussed by Nivison [1977], pp. 18–19) that 㞢 in such phrases stands for *yu* 有, "abundant," see Takashima (1973), pp. 336–338; cf. Serruys (1974), pp. 29–30. For additional scholarship, see Chin Hsiang-heng (1967); Nivison (1973); Yen Yi-p'ing (1973a).

86. I assume, on the basis of context, that sentences 3 and 4 are in the same conditional mood as 1 and 2, though recorded in abbreviated form. This is speculative. If the meaning in parentheses is not supplied, then the sentences should read: "The king should follow Chih Kuo/The king should not follow Chih Kuo." For "should not" as a translation for the negative *wu* 勿, see n. 44. To supply the Pa-fang as the object of the attack is still more speculative. I do so for the following reasons. No inscription (S65.4 ff.) records that Chih Kuo was to attack the Hsia Wei. It is unlikely, therefore, that sentences 3 to 6 should be taken as proposing that the king join Chih Kuo in attacking the Hsia Wei. *Ping-pien* 22.11–12, probably divined by Ch'üeh on keng-shen (day 57), concerns the king following Chih Kuo to attack the Pa-[fang]. *Ping-pien* 24 + *Ching-chin* 1266 (see *Ping-pien* 24, *k'ao-shih*, pp. 48–51) records eight charges (A–H), probably all divined by Cheng on hsin-yu (day 58), about the king following Wang Ch'eng to attack the Hsia Wei and twelve charges (I–N, P–U),

(Preface:)	(6) Crack-making on hsin-yu (day 58), Ch'üeh divined:	(5) Crack-making on hsin-yu (day 58), Ch'üeh divined:
(Charge:)	"(This season) it should not be Chih Kuo that the king follows (to attack the Pa-fang, for if he does we will not perhaps receive assistance in this case)."[87]	"(This season) it should be Chih Kuo that the king follows (to attack the Pa-fang, for if he does we will receive assistance in this case)."
(Preface:)		(7) Divined:
(Charge:)	(8) "Praying to lead away this sick tooth (?), the *ting* sacrifice will be favorable."[89]	"*Yu* sacrifice a dog to Fu Keng (and) *mao* sacrifice a sheep."[88]
(Charge:)	(10) "(Sick tooth) will perhaps not be favorable."	(9) "Sick tooth will be favorable."

The inscriptions on the back of the plastrons in this set may be reconstructed and translated as follows:

Reconstructed Chinese Text
for *Ping-pien* 13, 15, 17, 19, 21

(1) 隹父甲
(2) 不隹父甲
(3) 隹父庚
(4) 不隹父庚
(5) 隹父辛
(6) 不隹父辛
(7) 隹父乙
(8) 不隹父乙
(17.9) 王[固]曰其㞢祟乚其隹戊㞢祟不吉亅
(19.9) 王固曰丁丑其㞢祟不吉其隹甲㞢祟吉其隹辛㞢祟亦不吉亅
(13.9; 21.9) 夂吕入二在𢆶

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probably divined on the same day, about the king following Chih Kuo to attack the Pa-fang. Since no month or year is recorded on our set, on *Ping-pien* 22, or on *Ping-pien* 24 + *Ching-chin* 1266, we cannot be certain that these divinations were made on the day prior to, or on the same day as, the hsin-yu (day 58) divinations of our set. The fact that *Ping-pien* 22.1–4 also records four charges about the king following Wang Ch'eng to attack the Hsia Wei, divined on yi-mao (day 52), the fact that all the *Ping-pien* plastrons were found in the same pit, YH 127, the fact that the same court diviner, Ch'üeh, presided over the divinations recorded on our set and on *Ping-pien* 22—these considerations make it plausible that the inscriptions cited all refer to contemporary campaigns. This is the assumption of Chang Ping-ch'üan, who, following Tung (1945), lists other inscriptions apparently related to these events (*Ping-pien* 12, *k'ao-shih*, pp. 32–35). See too n. 109 below.

87. On the copulas 隹 and 叀, see Takashima (1973), pp. 246–253, 399, n. 1; Serruys (1974), pp. 24–25, 74, n. 64; see too, Takashima (1977), pp. 11–18, for possible contrasts of emphasis involved in the different sentence patterns. If the meaning in parentheses is not supplied, then sentences 5 and 6 should be translated: "It should be Chih Kuo whom the king follows / It should not be Chih Kuo whom the king follows."

88. On the *mao* sacrifice, see n. 52.

89. The translation of sentence 8 is problematical. On the verb 彳, see ch. 1, n. 62. The graph 鼎 is graphically distinct from the 貞 normally used in the preface of the period I

Translation
of *Ping-pien* 13, 15, 17, 19, 21

PAIRS OF COMPLEMENTARY CHARGES

	Negative charge (left side)	Positive charge (right side)
(Subcharge:) (1)	It is because of Fu Chia.	(2) It is not because of Fu Chia.[90]
(Subcharge:) (3)	It is because of Fu Keng.	(4) It is not because of Fu Keng.
(Subcharge:) (5)	It is because of Fu Hsin.	(6) It is not because of Fu Hsin.
(Subcharge:) (7)	It is because of Fu Yi.	(8) It is not because of Fu Yi.

NONCOMPLEMENTARY RECORDS

(First prognostication, 17.9:)*	The king [reading the cracks] said: "There will perhaps be a natural phenomenon.[91] If it be a wu day when there is a natural phenomenon, it will be inauspicious."[92]
(Second prognostication, 19.9:)	The king, reading the cracks, said: "On ting-ch'ou (day 14), there will perhaps be a natural phenomenon; it will be inauspicious. If it be a chia day when there is a natural phenomenon, it will be auspicious. If it be a hsin day when there is a natural phenomenon, it will also be inauspicious.[93]
(Marginal notations, 13.9; 21.9:)	Chih Fei (?) sent in two (shells). In Tuan (?).[94]

* Note that my numbering and reconstruction of the prognostications differ from Chang Ping-ch'üan's; see n. 91.

inscriptions (see ch. 2, n. 7). For other inscriptions in which this ornate form of *ting* was used as a verb, apparently of sacrifice, see *Ching-chin* 3875; 4330; *Hou-pien* 1.6.4; *Yi-ts'un* 783 (all S396.2). *Ting* cauldrons were used for offering ancestral sacrifices in Chou times. In the oracle bones the graph may simply have had the generic sense of "the ritual performed at the cauldron." *CKWT*, pp. 3477–3484, takes the view that and were the same word; they appear in different contexts, however, and Shima properly provides separate entries (S241.1 ff.; 242.1 ff.). Scholars are generally agreed that our graph, , is an early form of *lung* 龍. Chang Ping-ch'üan (*Ping-pien* 12, *k'ao-shih*, p. 32) takes it as loan for *hsiung* 凶, but this may be rejected for two reasons: First, following Karlgren's studies of initials (1963), p. 10, it is unlikely that 龍 **li̯ung* and 凶 **χi̯ung* would have been interchangeable in this way. Second, in the inscriptions at S242.1 ff., the phrase 不其龍 is common; following the rule of undesirability (see n. 41), which views the *ch'i* as a particle that weakens the undesirable charge, the *lung* of "not perhaps *lung*" would be a desirable rather than undesirable word. *Lung* was probably used as a loan for **t'li̯ung*/*ch'ung* 寵, "grace, favor," as it was used in *Shih-ching*, ode no. 293 (*GSR*, 1193), and so I take it here; cf. Jao (1959), p. 138; Kuo Mo-jo, cited by *CKWT*, p. 3477. Nivison's argument ([1977], p. 12) that , which following Shima ([1958], p. 278) he identifies as *ch'iu* 虯, "hornless dragon," was ancestral to *ch'ou* 瘳, "recover," should also be considered.

[90] For *wei* 隹 in the sense of "due to," "because of," "caused by," see Takashima (1973), pp. 243, 394, n. 34.

[91] I believe Chang Ping-ch'üan errs in separating his *Ping-pien* 17.9 and 17.10, in putting his 17.9 before his 17.10, and in the reconstruction of his 17.10 (*Ping-pien* 17, *k'ao-shih*, p. 39). For parallel inscriptions to justify my arrangement and translation, see *Ch'ien-pien* 7.32.3; *Hsü-pien* 5.9.2, etc. (S94.2). A modern equivalent of has not been identified. For a resumé of the scholarship, see *Ping-pien* 17, *k'ao-shih*, p. 40; *Jimbun* 3, *shakubun*, p. 143, n. 2; Serruys (1974), p. 76; Mickel (1976), pp. 149–158. In some contexts the graph refers to a sacrifice (e.g., *Kikkō* 1.26.6 [S94.2]; *Chui-ho* 286 [S94.3]). But in other instances it refers to some natural, probably climatological, event whose significance was thought to vary with the day of its occurrence.

3.7.2 *The Hollows and Cracks*

Supplementing our ignorance about the piece missing from the left epiplastron of *Ping-pien* 17 with information derived from the corresponding areas of *Ping-pien* 15, 19, and 21, we can infer that each plastron had thirty-two hollows chiseled into its back, with sixteen on the right and sixteen on the left, arranged in a symmetrical pattern (fig. 23). A total of 160 hollows was made, therefore, on the five plastrons. A study of the *pu* cracks appearing on the front of the plastrons suggests that the hollows were all burned and cracked; the hollows were used with full efficiency (cf. sec. 1.6.4).[95]

In general, crack numbers were carved in the upper angle of each *pu* crack (sec. 2.4)—all the cracks on *Ping-pien* 12 being numbered 1, all the cracks on *Ping-pien* 14 being numbered 2, and so on—but through carelessness, or for some deeper reason, some of the cracks were left numberless.[96]

I take it in the second sense here because there are no sacrifice prognostications of the form "If we sacrifice on one day, it will be auspicious; if we sacrifice on another day, it will be inauspicious." By contrast, prognostications about childbearing, alarming news, disaster, and rainfall do occasionally follow this day-specific pattern (e.g., *Ping-pien* 247 [fig. 12]; *Han-ch'eng* 2; *K'u-fang* 1609 [D] [both S308.1]). The graph appears to depict a hand striking a triangular object with a mallet. Conceivably, the root idea was "strike." In sacrifices, it might have referred to striking a drum; and in the case of the natural phenomenon the drumming might have been a reference to thunder (a suggestion of David Nivison in his letter of 15 November 1976). Or, in sacrifices, the word might have referred to striking a ritual blade; and in the case of the natural phenomenon it might have referred to the sparks, hence lightning, so produced.

92. For "if" as a translation of *ch'i* 其 in prognostications, see n. 41.

93. The hsin is illegible in the rubbing. Here I follow the transcriptions of Chang Ping-ch'üan and S94.2.

94. Following *Ping-pien* 13, *k'ao-shih*, p. 36, *Chih* 夂 (or *Sui* 夊 [?]—see *CKWT*, pp. 1895–1896) is a name that appears in four uninformative period I inscriptions (S61.2). Fei (?) is a *hapax legomenon*. Possibly, Chih Fei referred to a leader called Fei from the region of Chih. I assume with Shima (S357.4) that is a variant of . Chang Ping-ch'üan, in fact, transcribes the graph as ; this is possible on the basis of *Ping-pien* 13, but Shima's reading is supported by *Ping-pien* 21. The roughness of the plastron back makes the accuracy of the rubbings uncertain. As a matter of convenience, I follow Ikeda (1964), 2.15.14 and 2.32.14, for the highly speculative reading of Tuan 斷 (?). On this place, see n. 98 below.

95. The rubbings do not allow certainty on this point for they do not always reproduce the *pu* cracks, especially when the cracks were not engraved (cf. Chang Ping-ch'üan [1956], p. 241). Note, for example, that *Ping-pien* 20.3 has a crack number 5, but no crack is visible in the rubbing; similarly, the *hsiao-chi* crack notation on the left hypoplastron of *Ping-pien* 18 lacks a visible crack. The fact that cracks can be identified in each of the thirty-two hollow positions for at least one of the plastrons suggests that all the hollows were cracked in each case. This analysis, and much of what follows, depends on the use of tracings made of the hollow positions, reversed and superimposed on the front of the shell, to locate the area where cracks should have formed and near which the relevant inscriptions should have been carved.

96. For example, two cracks without numbers appear at the top center of the right and left hypoplastrons of *Ping-pien* 16, and two more appear at the top of the right and left xiphiplastrons; the cracks associated with *Ping-pien* 18.7 and 18.8 have no numbers (the *k'ao-shih* appears to be wrong), and at least two more inscriptionless cracks on the right hyoplastron of *Ping-pien* 18 lack numbers; the cracks for *Ping-pien* 20.7 and 20.8 lack numbers (cf. the *k'ao-shih*, p. 43), and so do at least five more inscriptionless cracks on the right and left hyo- and hypoplastrons of that shell. It is possible that in some of these cases the numbers may be on fragments now lost, but it is clear that numbers were not carved in every case (cf. ch. 2, n. 32, above). It appears that at the top center of the left hypoplastron of *Ping-pien* 14 the Shang engraver deliberately obliterated a crack number (*k'ao-shih*, p. 37); on this practice, see sec. 2.4.

Lacking any direct evidence, we must assume that the rule of proximity determined which inscriptions were related to which cracks. As we have seen, inscriptions appear to have been carved above, or to the side of, their *pu* cracks and on the side of the crack which lacked the transverse branch (sec. 2.9.4). Using this criterion, we can separate the thirty-two cracks formed in each plastron into three categories: (1) front-inscription cracks, which may be linked by their location to one of the charges carved on the plastron front; (2) back-inscription cracks, which may be linked by their location to one of the charges carved on the plastron back;[97] and (3) inscriptionless cracks, which can be linked by their location to no adjacent inscriptions. The hypothetical relation between the cracks and inscriptions is given in table 11. The fact that in this view Fu Keng is associated with only two cracks is anomalous; the other ancestors are all associated with four. And we cannot be sure that the eight remaining hollows at the bottom of the plastron were not also cracked for Fu Yi. But I believe that as a rough approximation these correlations are correct. Of the thirty-two cracks made on each plastron, ten were front-inscription cracks and fourteen were back-inscription cracks, leaving eight inscriptionless cracks at the bottom of the shell.

Still more speculatively, I assume that the prognostications at the top of *Ping-pien* 17 and 19—breaking the rule of proximity—are to be correlated with those eight seemingly inscriptionless cracks. This could be justified by a rule of balance in which the top and bottom of the shell stood in special relation to each other, just as the sides did. And the distance between the hollows and their related inscriptions could be explained functionally: the necessary cracks could not have been made on the epiplastron or entoplastron at the top of the shell because they would have broken into the zone of inscriptions 17.1, 17.2, 19.1, and 19.2 on the front; and the prognostications could not have been carved on the xiphiplastron at the bottom of the shell because hollows H25 to H32 (see fig. 23) left too little room for such lengthy inscriptions. I tentatively assume, therefore, that these last eight cracks were associated not with recorded charges but with eight unrecorded subcharges whose existence we may also infer from the resulting prognostications (see sec. 3.7.4.2).

3.7.3. *The Crack Notations*

There are three crack notations on the front of the plastron pieces now remaining to us. The first is a *hsiao-chi* 小吉, "slightly auspicious," carved in the lower angle of the front-inscription crack formed in hollow H6 of *Ping-pien* 14/15; I have associated this (in table 11) with charge 8: "Praying to lead away this sick tooth, the *ting*-sacrifice will be favorable." The second crack notation is a *shang-chi* 上吉, "highly auspicious," near the top left corner of the right hypoplastron of *Ping-pien* 14; this notation lies in the lower angle of the crack formed in hollow H15, which I have associated with subcharge 5: "It is because of Fu Hsin." The third crack notation is another *hsiao-chi*, "slightly auspicious," just visible on the fragmented edge of the left hypoplastron of *Ping-pien* 18; this notation lies in the lower angle of the crack in hollow H16, which I have associated with subcharge 6: "It is not because of Fu Hsin."

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[97] The examples cited by Li Ta-liang (1972), pp. 69–79, clearly indicate that charges on the back of a shell were related to cracks that appeared on the front.

3.7.4 *Interpretation*

Having tentatively correlated the cracks, crack notations, and inscriptions, we may now attempt to reconstruct the divination scenario. Two plastrons, the first and last of the set, were sent in by Chih Fei at a place called Tuan; this fact was recorded as a marginal notation. Other inscriptions reveal that the Shang farmed and sojourned at Tuan and that it was the site of a garrison camp.[98] As a locus of such activities it was natural that certain shipments of shell (sec. 1.2.4) would have been received there.[99] The source of the other three shells in the set, one of which (*Ping-pien* 16/17) has been identified as *Ocadia sinensis* (tables 3 and 4), was not recorded.[100]

After the marginal notations had been carved in the shell (sec. 1.4), thirty-two double hollows (sec. 1.5) were chiseled in the back of each of the five plastrons, which were then ready for cracking. If we assume that it required thirty minutes to chisel a double hollow, eighty man-hours would have been required to prepare the hollows on the five plastrons.[101]

3.7.4.1 *The Front of the Plastron*

The first six charges concern contemplated attacks against two enemy statelets, the Hsia Wei and the Pa-fang.[102] The question in the king's mind was whether he should follow Wang Ch'eng[103] in his attack on the Hsia Wei or whether he should follow Chih

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[98] See *Ping-pien* 169.5–6; *Yi-pien* 1044; 1410 (S357.4). Since the two shells of our set were received at Tuan, it is conceivable that the divinations they record about the season's campaigns against the Hsia Wei and the Pa-fang were divined at "camp Tuan," to which the king may have gone in the second month (*Ping-pien* 65.8 [S357.4]). The lack of any notation to the effect that our plastrons were "ritually prepared" might be explained by the fact that none of the royal women who usually performed this task (sec. 1.4) had accompanied the king to Tuan, where the shells were received.

[99] For other marginal notations recording the receipt of small numbers of shells at various places, see S256.

[100] Another group, of three shells, was apparently received at Tuan (*Yi-pien* 642 [S357.4]), but the fragment recording that fact does not appear to belong to our set.

[101] See the report of Chang Kuang-yüan, cited in ch. 1, n. 93.

[102] In the case of the Hsia Wei 下危, the reading of the second Shang graph, , is uncertain; for an introduction to the scholarship and the location of the statelet, see Yü Hsing-wu (1940), pp. 22a–b; Shima (1958), pp. 389–390; Ikeda (1964), 1.18.3; Serruys (1974), p. 107, n. 39. In the case of the Pa-fang 巴方, there are disagreements about the reading of the first Shang graph, , and the location of the statelet; for an introduction to the problems, see Ch'en Meng-chia (1956), p. 284; Shima (1958), pp. 390–391; *CKWT*, p. 2783.

[103] Wang Ch'eng was a major Shang general or ally in period I. For an introduction to the scholarship, see *Ogawa* 1, *shakubun*, pp. 250–251.

Kuo[104] in his attack on the Pa-fang. (It is important to stress that the words "to attack the Pa-fang" are recorded nowhere in this set. If I am correct in supplying this meaning,[105] the full significance of charges 3 to 6 has to be obtained not just from the inscriptions in the set but also from those on related scapulas and plastrons; other sets should presumably be read with the same possibility in mind.) The diviner presented the topics to the spirits as pairs of positive-negative, complementary charges. In effect the charges offered two alternatives; if the king followed a certain general to attack a certain tribe he either would or would not receive assistance. The assistance was presumably to come from Ti, the high god; that Ti was not specifically mentioned is another instance of routine abbreviation.[106]

For each of these first six charges, three positive and three negative, one crack was made on each shell in the sequence indicated by the crack numbers. Thus, the topic of Wang Ch'eng and the attack on the Hsia Wei, proposed in the form of complementary charges (sentences 1 and 2), was cracked twice on *Ping-pien* 12, twice on *Ping-pien* 14, and so on for a total of ten crackings in all.[107] The topic of Chih Kuo and the attack on the Pa-fang was also cracked ten times on the five shells (charges 3 and 4); and the divination was then repeated ten more times—charges 5 and 6 virtually duplicating, though with a different emphasis, charges 3 and 4—for a total of twenty cracks in all. In addition to the thirty cracks made for these first six charges, we can discover at least 130 more cracks made on other bones and shells in a two-day period, probably about this same question of strategy.[108] Such pyromantic attention suggests that Wu Ting was deeply concerned by the topic (and also, perhaps, that a satisfactory response was not easy to obtain).[109]

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[104] Chih was a place name. Kuo (?)—hence Kuo of Chih?—is thought to have been a powerful general of period I (e.g., *CKWT*, p. 3545). The reading of *kuo* 聝 for 可 is not certain. Some scholars (e.g., Chang Ping-ch'üan, *Ping-pien* 12, *k'ao-shih*, p. 30) read it as *chia* 戛. For an introduction to the scholarship, see Shima (1958), pp. 387, 391; Ikeda (1964), 1.17.5; Serruys (1974), pp. 113–114.

[105] For the reasons why I do so, see n. 86.

[106] For the role of Ti in such divinations, see the inscriptions at S157.4, especially *Yi-pien* 3787. Cf. Hu Hou-hsüan (1959), pp. 37–39.

[107] There are reasons for thinking that the positive charge was cracked before the negative (see ch. 2, n. 130), but it is possible that the negative charge was cracked first, that the two charges were cracked simultaneously, or that there was no consistent rule.

[108] At least ten cracks must have been made on keng-shen (day 57) for *Hsü-pien* 3.11.3; 3.12.1; *Hsü-ts'un* 1.624; *Ts'ui-pien* 1108; 1109 (all S110.2). Twenty more cracks were formed for the set represented by *Ping-pien* 22.11–14. On hsin-yu (day 58), in addition to the thirty cracks of our set, some one hundred cracks must have been made for the set represented by *Ping-pien* 24 + *Ching-chin* 1266. It is not certain, of course, that these inscriptions were all made during the same period in the same year (cf. nn. 86 and 109).

[109] There may have been good reason for such concern. Following the calendrical reconstructions of Tung (1945), pt. 2, ch. 9, pp. 4a–8a, which would place the *Ping-pien* 12–21 divinations in the twelfth month of Wu Ting's twenty-ninth year, with the day hsin-yu being equivalent to 24 November 1311 B.C. (see Tung [1945], pt. 2, ch. 1, p. 25b), Chang Ping-ch'üan concludes that in the period from the third to the twelfth month of that year seven statelets were at war with the Shang (*Ping-pien* 12, *k'ao-shih*, p. 35; see too, Chow Tse-tsung [1968], pp. 174–175). But given the lack of numbered months in all but two of the inscriptions he cites, and the lack of year numbers in all, it is uncertain that these events fell within the same year and in the months he specifies. And it is far less certain that Tung's absolute dates are reliable; I myself would, at the moment, prefer dates of about 1198 to 1180 B.C. (see appendix 4, sec. 6). The questionable validity of Tung's chronological reconstructions will be discussed in *Studies*.

We are uncertain about the outcome. Prognostications and verifications were never recorded for divinations about following particular officers to attack particular enemies. As for crack notations, none is recorded on our set for these six charges, though it is possible that notations might have been carved on the missing fragments.[110] The fact that two "highly auspicious" crack notations appear by the "follow Chih Kuo to attack the Pa-fang" charges on a related plastron, however, suggests that the king may have decided to join that campaign rather than follow Wang Ch'eng against the Hsia Wei.[111]

The remaining four charges on the front of the shell (inscriptions 7 to 10), written in smaller calligraphy, concern a toothache, presumably the king's.[112] None of these inscriptions record a date or diviner's name, and no dated inscriptions on other bones or shells may be related conclusively to these. On the basis of the dates recorded in the prognostications (see table 12), these charges were probably divined some ten days after the campaign divinations.[113]

Charge 7 is not paired, at least not obviously. It states the intention of *yu* sacrificing a dog to Fu Keng and *mao* sacrificing a sheep. Charge 8, whose precise meaning is uncertain, appears to pray that a sick tooth be removed and that the *ting* sacrifice be favorable. The placement of these two inscriptions, balanced on either side of the central axis, suggests that, though not complementary in content, they formed a pair of linked divinations, the *yu* and *mao* sacrifices being combined with the prayer to lead away the sick tooth.[114] No crack notations appear for any of the five cracks associated with charge 7 on the five plastrons. *Hsiao-chi* appears by the number 2 crack of charge 8 on *Ping-pien* 14, indicating that the offering of prayer and *ting* sacrifice and—if one links charges 7 and 8 together—the sacrifices to Fu Keng would be "slightly auspicious."

Charges 9 and 10 are a complementary, positive-negative pair, divining whether or not the sick tooth would prove favorable. No crack notations appear beside the ten cracks made for this pair of charges (though it is possible that a crack notation might have been recorded on the missing fragments of *Ping-pien* 12).

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[110] Crack notations might have been recorded on missing fragments for *Ping-pien* 12.2; 12.5; 12.6; 14.3; 16.1; 18.2; 18.4; 18.6; 20.2; 20.5.

[111] *Ping-pien* 24 + *Ching-chin* 1266 (*Ping-pien* 24, *k'ao-shih*, pp. 48–50), probably divined on the same day; the crack notation *shang-chi* appears by charges 7 and 10.

[112] Only Wu Ting (*Ch'ien-pien* 4.4.2; 6.33.1) and his consort Fu Hao (*Yi-pien* 3164) are recorded as suffering from toothache (S301.3–4); in all other cases, the subject—presumably the king—is omitted.

[113] It is reasonable to suppose that when calligraphy of different sizes appears on the same plastron, the inscriptions written in larger calligraphy record divinations that were made first. On *Ping-pien* 1, for example, the small and medium inscriptions appear to have been carved after the large inscriptions and squeezed in among them (on the meaning of these descriptive terms, see sec. 4.3.1.3). The cyclical dates support such a hypothesis; divinations 1 to 4, written in large, bold calligraphy (**tieng* height, 9.5–15 mm.), were divined on jen-tzu (day 49) and kuei-ch'ou (day 50). All the other divinations (**tieng* height, 5.5–7 mm.) were made later: on keng-shen (day 57), hsin-yu (day 58), kuei-hai (day 60), yi-ch'ou (day 2), and ping-yin (day 3). Further, the subject matter of the small inscriptions is supplementary to that of the large. When the subject matters are unrelated, however, the repetition of the *kan-chih* cycle may make firm conclusions impossible. E.g., was *Ping-pien* 207.3 (large calligraphy; divined on day 33) inscribed before *Ping-pien* 207.1 (small calligraphy; divined on day 24)? If so, the front of the plastron would have been used for divination for a period of fifty-one days. If 207.1 was divined before 207.3, however, an interval of only nineteen days would have been involved (the period from day 24 to the day 43 of 207.4).

[114] This conclusion is strengthened by the link between the *yu*, *mao*, and *ting* sacrifices recorded at *Ping-pien* 340.2 and 340.5.

3.7.4.2 *The Back of the Plastron*

The naming of Fu Keng in charge 7 on the front suggests that it and the related toothache inscriptions (charges 8 to 10 on the front) may be linked to the charges on the back of the plastrons, inscriptions 1 to 8 on *Ping-pien* 13, 15, 17, 19, and 21. These record four complementary charge pairs of the form "It is because of Fu Chia/ It is not because of Fu Chia" and the like. Since we know from other inscriptions that toothaches were caused by ancestral curses,[115] it is reasonable to suppose that these charges on the back were attempts to determine which ancestor was causing the toothache recorded on the front. I refer to such charges, which are part of a larger enquiry and which often, as in this case, lack any preface, as "subcharges."

The ancestors to be identified in this instance were all Wu Ting's classificatory fathers —known to Ssu-ma Ch'ien as Yang Chia (K17), P'an Keng (K18), Hsiao Hsin (K19), and Hsiao Yi (K20)—and divined here in the order in which they ascended the throne.[116] As we have speculated (sec. 3.7.2 and table 11), cracks about Fu Chia, Fu Hsin, and Fu Yi were made twice for the positive and twice for the negative subcharge on each of the five plastrons; cracks about Fu Keng were made once for the positive and once for the negative subcharge on each of the five plastrons. The fact that Fu Keng was chosen to be the recipient of the sacrifice recorded in charge 7 on the front of the shells suggests that the diviners had identified him as the ancestor responsible for the toothache; if so, the subcharges recorded on the back of the shell must have been cracked *before* charge 7 on the front. The crack notations, "highly auspicious" and "slightly auspicious" associated with the Fu Hsin subcharges (sec. 3.7.3) suggest that Fu Hsin may have been absolved of responsibility for the toothache. Fu Chia and Fu Yi were presumably absolved in the same way, perhaps by auspicious crack notations on fragments now lost, or by inconclusive divinations.[117] There are no crack notations associated with subcharges 3 and 4 on the back of the shell (see table 11) to tell us why Fu Keng was the ancestor identified, but that is to be expected since inauspicious crack notations were never recorded (sec. 2.6). The subcharges for Fu Keng may have been cracked fewer times than those for his brothers

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[115] E.g., *Yi-pien* 4511; 4600; 4626, etc. (S301.4). Cf. Chang Tsung-tung (1970), pp. 34–45.

[116] See table 1. On the identification of these ancestors, see sec. 4.3.1.1.

[117] Using the hollow numbers given in fig. 23 and table 12 the following hollows and their fragments, which might have borne the relevant crack notations, are missing: for Fu Chia, H8 on *Ping-pien* 13, H3 on *Ping-pien* 17, H4 on *Ping-pien* 19; for Fu Keng, H11 on *Ping-pien* 13, H12 on *Ping-pien* 19; for Fu Hsin, H13 and H15 on *Ping-pien* 13, H14 on *Ping-pien* 19; for Fu Yi, H19, H20, H23, and H24 on *Ping-pien* 13 and 19, H20, H23, and H24 on *Ping-pien* 21.

because the diviners had identified his inauspicious influence after just two crackings, making further divination in his case unnecessary.

If this reconstructed scenario is correct, subcharges 1 to 8 carved on the back of the plastrons record Wu Ting's attempt to discover which classificatory father was causing his toothache. Charges 7 to 10 on the front indicate that P'an Keng had been identified as the uncle responsible and that divinations were then made to determine if offering a dog and a sheep, while praying to remove the sick tooth, would have a favorable outcome. The response appears to have been "slightly auspicious," appropriately cautious, perhaps, in the case of toothache, where no miracle cure could be expected.

Finally, we must attempt to make sense of the two prognostications, *Ping-pien* 17.9 and 19.9 (my numbering). The thickness of the carved strokes and the large size of the graphs may be explained partly by the roughness of the plastron back and partly, perhaps, by the desire to "display" the king's prognostications,[118] which, in this case, forecast whether the natural phenomenon would be auspicious or inauspicious according to the day on which it occurred. The pattern, "If it be a wu day when there is a natural phenomenon, etc.," indicates that the prognostications were a response to a series of subcharges which, though unrecorded on our set, must have been of the form "A natural phenomenon will occur on such-and-such a day," each crack indicating whether the phenomenon was to be considered auspicious or not for the particular day associated with that crack. These unrecorded subcharges may tentatively be assigned to the inscriptionless cracks identified in sec. 3.7.2.[119]

It is puzzling that the prognostication topic, the natural phenomenon, is mentioned

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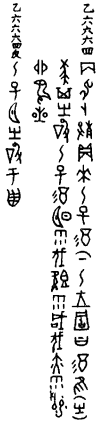
[118] For display inscriptions, see ch. 2, n. 90. The inscriptions in our set are not true display inscriptions, by my definition, for the prognostication is not linked to a charge or verification.

[119] If the prognostications were associated with the eight inscriptionless cracks in H25 to H32 (sec. 3.7.2), it is possible to imagine, as in table 12, a series of charges about the natural phenomenon occurring on eight days in sequence. Such an interpretation would require that an auspicious crack notation be found by one of the eight hollows, preferably H29. No crack notations appear, in fact, by any of the hollows, but that may be because four of the five plastrons (all except *Ping-pien* 16) lack the bottom halves (or more) of the hypoplastrons and all of the xiphiplastrons, which would have contained all but one (H25 is preserved in *Ping-pien* 19) of the missing hollows, H25 to H32. That is to say, of the forty relevant hollows, we now possess only nine; of the five H29s, we possess only one. The hypothesis is well supported by the fact that the sequence of days given in table 12 accords with the sequence of days recorded in the prognostications. We cannot be certain that the sequence is correct since three of the four dates recorded in the prognostications give only the *kan*-stem and lack the *chih*-branch. But if this sequence is correct, table 12 reveals that the king, in divining about the sacrifice days when the phenomenon would occur, started by proposing more distant days (when, perhaps, the toothache was more likely to have taken its course and departed) and then proposed days progressively closer, the last day, hsin-wei (?) (day 8), being cracked in the last hollow (H32) on the plastron. If this was the day of divination, the plastron set was used for the eleven-day period from day 58 to day 8. Such an interpretation is supported by the fact that another plastron set spanned a similar eleven-day period, from day 42 to day 52 (*Ping-pien* 35.1; 35.5). A study of *Ping-pien* 235.1–2 (fig. 11) and of *Ping-pien* 247.1–2 (fig. 12) plus 248.7 (fig. 13) will support the view that individual cracks were associated with individual days in this way. Further evidence for the existence of the putative subcharges will be presented in *Studies*.



in none of the charges on the shell. Given the absence of inscriptions which would provide firm corroboration, the interpretation which follows is tentative. A study of another inscription in which the natural phenomenon appears suggests that it was associated in the Shang diviner's mind with ancestral sacrifices:

(PREFACE:) Crack-making on ping-shen (day 33), Ch'üeh divined:

(CHARGE:) "On the following yi-ssu (day 42), offer wine libation to Hsia Yi."

(PROGNOSTICATION:) The king, reading the cracks, said: "When we offer wine libation there will be harm. There will perhaps be a natural phenomenon."

(VERIFICATION:) On yi-ssu (day 42), we offered wine libation. In the early morning it rained; at the *fa* sacrifice it stopped raining; at the *fa* sacrifice to Hsien (= Ch'eng [?], K1), it also rained. We offered *shih* and *mao* sacrifice to the Bird Star(s). (*Plastron back:*) On the evening of yi-ssu (day 42) there was a natural phenomenon in the west.[120]

An analogous situation may be proposed for our plastron set. The response to the charge, "*Yu* sacrifice a dog to Fu Keng (and) *mao* sacrifice a sheep" (charge 7 on the front) would have been a prognostication starting, "When we offer *yu* and *mao* sacrifice there will be harm. . . ." This was unrecorded, and only the second, more specific part of the prognostication appears on our plastron set: "There will perhaps be a natural phenomenon. If it be a wu day when there is a natural phenomenon, it will be inauspicious, etc." The fact that no divination was made to determine the day of the sacrifice suggests that it was to be offered on a daily basis—likely enough in case of toothache—and that the efficacy of the rituals was to be judged in part by the conjunction, sometimes auspicious, sometimes not, of the sacrifice day with the natural phenomenon. One may speculate that the sacrifice charge, together with the prognostications (*Ping-pien* 17.9; 19.9), demonstrated that the king, whose campaign plans may have been delayed by his toothache, had not lost control of the situation. The inscriptions recorded that he was sacrificing, that the spirits were expected to respond (with thunder or lightning, perhaps), and that he had already divined the meaning of their response.

3.7.5 *Making the Record*

At the end, a record was made; the engraver carved the crack numbers, crack notations, charges, and prognostications into the front and back of the plastrons. Whether this was done at one time or whether, for example, crack numbers, crack notations, charges, and subcharges were carved first and the prognostications only added later we cannot tell; nor can we tell whether the campaign inscriptions were carved before the toothache divinations were even cracked.[121]

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[120] *Ping-pien* 207.3 + 208.2 (part 2); originally published as *Yi-pien* 6664 (S94.2).

Finally, colored pigment (sec. 2.12) was rubbed into the graphs carved on the front and back of the shells, as shown in table 8. In most cases, the color has faded badly, and we cannot be sure if all the graphs were originally colored; nor, pending chemical analysis, can we be sure if the brown-black distinction reflects a difference in the original colors or, as seems more likely, a different rate of fading, due perhaps to the orientation of the plastrons in the ground.[122]

3.7.6 *Conclusions*

In sum, this set of five plastrons was used first to divine Wu Ting's campaign strategy for the season in question (thirty crackings), and it was then reused, about ten days later, to determine which ancestor was causing his toothache (seventy crackings), whether or not sacrifice to Fu Keng would be efficacious (twenty crackings), and which sacrifice days would and which would not be auspicious (forty crackings).

It is worth stressing the time that must have been involved. If the diviners made one crack a minute (and that seems an overly rapid estimate), it would have taken over two hours to perform the toothache and sacrifice-day divinations in this set; if they made one crack every two minutes, it would have taken over four hours, and so on. It is possible, of course, that cracks were made simultaneously, all the number 1 cracks on a plastron (or even on all five plastrons) being burned at the same time for the same topic. Such a procedure would have reduced the time involved, but not the amount of labor. If we include the estimated ten man-hours required to clean, saw, and polish the five plastrons, the eighty man-hours required to prepare the hollows (sec. 3.7.4), the additional thirty minutes (at a minimum) required to crack the campaign divinations, and the five hours (at least) needed to carve and color the inscriptions, we can see that divining this particular plastron set would have required some one hundred man-hours of specialized labor, or twenty hours per plastron. If we assume that a scapula would have involved similar effort and apply that twenty-hour figure to the total estimated corpus of 69,000 scapulas and 69,000 plastrons (appendix 3, sec. 4), we may estimate that some three million man-hours were devoted to pyromancy during the historical period; or, put another way, to divine 1.3 scapulas and 1.3 plastrons every day (appendix 3, sec. 4) would have required about fifty man-hours a day. Crude though these estimates are—and they are probably conservative—they indicate, once again, the importance the Shang attached to the divination ritual.

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[121] See ch. 2, n. 90.

[122] Cf. sec. 2.12.1. According to the *k'ao-shih*, p. 40, the graphs of *Ping-pien* 17.1–2 seem not to have been colored. The comment on p. 36 of the *k'ao-shih* that *Ping-pien* 13.7 and 13.8 on the bridge were not colored is a typographical error; it was the marginal notation, *Ping-pien* 13.9, that was not colored (Liu Yüan-lin, letter of 23 September 1975, citing Chang Ping-ch'üan). Further analysis concerning the fate of this set after it was placed in the ground will be presented in *Studies*.

I do not insist upon the accuracy of the above interpretation in every detail. The meaning of some of the charges and terms used is still obscure; and the relation between the charges and the cracks remains hypothetical. But this kind of attempt to read an inscription in full context and to discover its rationale must be undertaken, whenever possible, before an inscription is used as a historical source. Such close analysis, with one's nose to the bone as it were, may appear tedious at times—it is undoubtedly tedious to read about it in this way—but it is the kind of analysis that will, on occasion, provide insights that advance our knowledge of Shang divination and culture in fresh and unexpected ways. Scholars must understand the other inscriptions on the same bone or shell, both front and back, and the possible relations between them; they must look for crack notations; they must, using crack numbers, look for other inscriptions from the same set; and they must, using Shima's *Sōrui*, look for related inscriptions. They must try to discover what was going on—on the oracle bone, in the Shang court, in the diviner's mind.

CHAPTER 4

Dating the Inscriptions: Relative Chronology

4.1 *Introduction*

It is the periodization of the inscriptions—how they may be dated with regard to one another, and with regard to the royal reigns—that permits us to trace the evolution of Shang divination procedures and Shang institutions and beliefs. It allows us to view the late Shang historically, as an evolving dynasty and culture. The issues involved in relative dating are technical and, at times, frustrating, but their understanding is fundamental to the historian's task.[1]

Given the criteria we possess, it is not yet possible to establish a relative date for every inscribed bone and shell fragment. In some cases, none of our criteria apply; in other cases, the ones that do are not specific enough to be useful. As a result, many inscriptions have been dated on subjective grounds. It is not my intention to resolve the disputes that divide the field;[2] here I wish only to delineate the criteria involved, which, in virtually every case, stand in need of refinement.

4.1.1 *Rules of Thumb*

Some rules of thumb will permit the casual student or the researcher pressed for time to discover the date which other scholars may have assigned a particular inscription.

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[1] In this book, I attempt to specify the period of every inscription cited when it is important to do so. In some of these cases I am simply quoting the opinion of the editor of the collection in which the piece appears or the opinion of other scholars; but for those touchstone inscriptions for which I believe the period given is firmly established by basic criteria such as ancestral titles, diviner's name (which may not appear in the inscription itself but elsewhere on the same bone or shell), or writing style (when, as in period V, it is unmistakable), the number (i.e., *chüan*, page, and piece number, or rubbing number; see ch. 3, n. 5) is given in italics. The distinction between, say, *Chia-pien* 562 (period IIa) and *Chia-pien 2869* (period IIb), therefore, indicates that a greater degree of uncertainty about the date exists (in my mind, at least) in the first case. Note that this italic distinction is only employed when the period is specifically mentioned.

[2] The major dispute concerns the dating of the RFG inscriptions and hence the existence of alternating Old and New Schools of ritual practice. See ch. 2, n. 18.

First, it should be noted that the inscriptions in Shima's *Inkyo bokuji sōrui* (sec. 3.3.2) are arranged chronologically within each entry; once an inscription has been located in *Sōrui*, it is possible to discover, by considering the period of the inscriptions to either side of it, how Shima believed it should be dated. An example is provided below. Second, the more recent collections of rubbings and the more recent commentaries to older collections either arrange their rubbings chronologically or assign a date to most of the inscriptions that they gloss. The collections organized in this way are listed in table 13. Third, if the inscription in question (or an inscription on the same bone or shell) contains the name of a diviner, it is possible to determine the period to which that diviner is generally thought to belong. This information may either be found by consulting one of the dated diviner lists with which the literature abounds (such a list is provided in table 6); by consulting Jao Tsung-yi's *Yin-tai chen-pu jen-wu t'ung-k'ao* (sec. 3.3.2), which assigns periods to the diviners and presents the reasons for doing so; or by consulting the list of diviners and their inscriptions given in S557–576 and then, by consulting the appropriate commentaries, dating some of the other inscriptions made by that diviner.

Other rules of thumb are given in the body of this chapter, but these three are the quickest and simplest to apply. For example, we wish to date *Yin-hsü* 16 (D) (fig. 24). Using the procedures described in sec. 3.6.1, the inscription may be found at S289.4 (fig. 25). The inscription immediately to the right of *Yin-hsü* 16 is *Yin-hsü* 1535 (D) which contains the name of the diviner (Lü 旅). S567 lists all the inscriptions made by this diviner. Selecting those inscriptions for which we know there are glosses that assign periods, we find that Ikeda (1964) dates *Hou-pien* 1.5.8 to period IIb; similarly, all the *Ching-chin* inscriptions (spanning 3175 to 3754) and *Hsü-ts'un* inscriptions (spanning 1.1478 to 1.1725; 2.599 to 2.728) listed at S567 are assigned, by Hu Hou-hsüan's ordering of these collections (see table 13) to period II. Table 6 also reveals that Lü was a period II diviner. Jao (1959), p. 922, lists the ancestral titles recorded in Lü's divinations that permit us to place Lü in period IIb. *Yin-hsü* 1535, therefore, may be taken as a period IIb inscription. The first five inscriptions reproduced to the left of *Yin-hsü* 16 at S289.4 (fig. 25) yield, in Shima's transcription at least, no obvious clue as to their date; the sixth inscription, however, is *Hou-pien* 1.14.4, dated by Ikeda (1964) to period IIb. It may also be determined that (*Hsing* 行), the diviner of this inscription, is generally dated to period II or IIb; this may be done either by consulting table 6, by consulting Jao (1959), p. 1029, or by consulting some of the glossed inscriptions listed at S567–568. *Yin-hsü* 16 is thus bracketed in *Sōrui* by two inscriptions from period IIb. In Shima's opinion, therefore—which relies, of course, on the opinions of other scholars—it should also be dated to IIb.

4.2 *Tung Tso-pin's Five Periods*

Since most of the inscriptions cannot be placed with exactitude on a calendar of years, scholars have proposed broader schemes of periodization which attempt to date the inscriptions by the reigns of individual kings or groups of kings.[3] The basic periodization from which all others derive, even when they reject some of its features, is Tung Tso-pin's system of five periods. The periods and their elaborations are given in table 14. To date an inscription to period II, for example, means we think it was made either in the reign of King Tsu Keng or King Tsu Chia but that we cannot determine which. When it is possible to identify a specific reign, this is usually done. Thus, Ch'en Meng-chia has proposed a nine-period scheme, with one period for each of the nine kings from Wu Ting to Ti Hsin.[4] Rather than speaking of periods I through IX, however, many modern scholars have preferred to subdivide Tung's five periods by adding the postfixes *a* and *b* as indicated in the second column in table 14; thus, an inscription made in the reign of King Wen Wu Ting is dated not to what would logically be period VII but to period IVb.[5] Since these conventions are generally accepted, it seems best to continue using Tung's categories, which have the advantage of permitting us to retreat to, for example, a more general period II or period III + IV date when unable to determine the period more precisely. Hu Hou-hsüan, in fact, proposed a four-period scheme which, due to the difficulty of separating the inscriptions of the two periods, combines Tung's periods III and IV.[6] Tung himself came to adopt a different four-period system, with the first period being of the Old School (his old periods I and IIa), the second being of the New School (IIb and III), the third of the Old (IV), and the fourth of the New (V).[7] In cases for which the five periods themselves are still too precise, Ch'en Meng-chia, following certain trends in the character of the inscriptions, has proposed a broader periodization: Early (periods I through IIIa), Middle

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[3] In some cases, two or more inscriptions may record a full Shang date—cyclical day, month, ritual cycle number (sec. 4.3.1.7). In such cases, or when inscriptions come from the same bone or, although on different bones, refer to the same topic (ch. 3, nn. 86, 108), it is possible to establish their relative date with exactitude. Such determinations—which, once they involve more than one Shang month, require us to reconstruct at least part of the Shang luni-solar calendar—have been proposed in great number by Tung (1945) (see my comment at ch. 3, n. 109). In this chapter, however, I am concerned only with macro-periodization.

[4] Ch'en Meng-chia (1956), p. 138. Few, if any, inscriptions can be firmly dated to the generation prior to Wu Ting (see n. 24, but cf. too n. 150), so that Tung's period I should, for most purposes, be reduced to the reign of Wu Ting. For the possibility that Lin Hsin did not reign, so that there were only eight rather than nine kings in the historical period, see table 1, note h.

[5] This is the system adopted by Japanese scholars in particular. Ikeda (1964) reserves "period Ib" for the RFG inscriptions (see sec. 2.2.1.1); Chang Tsung-tung (1970), p. 21, follows this pattern. Hsü Chin-hsiung (1974), p. 211, introduces further subdivisions, such as IIIa, IIIb, and IIIc.

[6] *Ching-chin*, preface, p. 1b; *Hsü-ts'un*, preface, p. 2. On the need for combining periods III and IV, see too *Jimbun shakubun*, English preface, p. 21; Yen Yi-p'ing (1961), pp. 485–486. Ch'en Meng-chia (1956), p. 139, rejects Hu Hou-hsüan's solution, but not, in my view, effectively. On the difficulties involved in separating III and IV, consider Shima's apology ([1960], p. 49) for assigning certain inscriptions to period III in his 1958 book, which he would now place in IVb. Similarly, the assignment of a period IV date to certain *Chia-pien* and *Jimbun* inscriptions has been challenged, plausibly, in my opinion (see n. 44). For a new attempt to distinguish periods III and IV on the basis of physical criteria, such as hollow shapes and burn marks, see nn. 155 and 170 below.

[7] Tung (1945), pt. 1, ch. 1, p. 2b; pt. 2, ch. 5, p. 2b. Cf. ch. 2, n. 18, above.

(IIIb through IVb), and Late (V).[8] These dating schemes do not conflict, but represent varying responses to the specificity of the evidence.

4.3 *The Dating Criteria*

Tung Tso-pin, whose classic article (1933) made comprehensive periodization of the inscriptions possible, employed ten dating criteria: genealogy, titles, diviners, pit location, foreign statelets, persons, divination topic, grammar, epigraphic form, and calligraphy. These criteria are not all equally independent or conclusive, and the analysis which follows combines some of his categories,[9] introduces new ones, and, for convenience, divides the criteria into three groups: inscriptional, physical, and archaeological.

The periodization of many inscriptions, if it can be done at all, frequently depends upon a congruency of various criteria, none conclusive in themselves, but which, taken together, serve to establish an inscription's date with comparative certainty.[10] The analysis below is artificial when it considers each criterion separately; the criteria must always be used, when possible, in combination. Further, it is important to bear in mind the historical realities which produced the criteria in question. A change in calligraphy, for example, implies a change in calligraphers; a change in the divination topics and formulas implies changes in the Shang situation or the theology of divination. Any comprehensive theory of periodization—and we do not yet possess one—must account for such changes in convincing historical terms.[11]

4.3.1 *Inscriptional Criteria*

In the absence of sufficiently precise absolute dates, arrived at by carbon-14 dating or some other method (see appendix 4), and in the absence of sufficiently precise relative dates, arrived at by analogical or stratigraphic criteria (sec. 4.3.3), the inscriptions themselves provide our most reliable evidence for relative dating.

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[8] Ch'en Meng-chia (1956), pp. 138, 142.

[9] Foreign statelets and persons, for example, may be considered under divination topic (sec. 4.3.1.12; appendix 5, secs. 3 and 4); genealogy (by which Tung means Fu Keng 父庚) and titles (by which he means P'an Keng 般庚) may be considered together under ancestral titles (sec. 4.3.1.1).

[10] Courageous editors, such as Hu Hou-hsüan (*Ching-chin*, *Hsü-ts'un*, and *Liu-lu*), Kaizuka and Itō (*Jimbun*), or Hsü Chin-hsiung (*Menzies* and *White*), who seek to date, often by analogy, every inscription in their collections, risk a certain number of errors. (On this point, cf. Serruys [1974], p. 15.) Hsü Chin-hsiung, for example, originally placed *Menzies* 2622 in period IV, but subsequently ([1973a], pp. 25, 122) assigned it to period III; he originally assigned *Menzies* 12 to period I, but subsequently joined it to *Menzies* 2995 of period V (*Chui-hsin* 549).

[11] The alternation of the Old and New Schools proposed by Tung (see ch. 2, n. 18) provides such a theory, but it is not, in my view, satisfactory, in part because it assumes, for no demonstrable reason, that the periodizing criteria were strictly related to royal reigns. As Li Hsüeh-ch'in (1957), p. 124, has noted, the oracle-bone inscriptions of a single king are not necessarily all in the same style; and inscriptions in the same style do not necessarily belong to the same king.

4.3.1.1 *Ancestral Titles*

The kin titles by which the Shang inscriptions refer to the dead comprise the only unequivocal criterion for relative dating we so far possess.[12] That is, a title, if it is unambiguous in its referent, is prescriptive; it permits us to establish with absolute certainty the generation when a divination, and presumably its record, was made. All other criteria, such as diviners' names, epigraphic forms, hollow shapes, or pit location, are—to the extent that their conclusions are expressed in terms of Tung's five periods—secondary; they finally derive from the evidence of the titles and, being descriptive, permit us to establish the period of inscriptions without datable titles only with varying, but frequently high, degrees of probability.

The way in which we can use titles to date inscriptions is simple: if an inscription refers to an ancestor as "father" (*fu* 父) and we can place that "father" in the Shang royal genealogy (table 1), we can then establish beyond doubt that the inscription refers to a divination performed during the generation of his "sons." Similarly, reference to an "older brother" (*hsiung* 兄) establishes that the divination was performed by a "younger brother" of the same generation. The same considerations apply to titles like "mother" (*mu* 母), "grandfather" (*tsu* 祖), "grandmother" or, occasionally, "mother" (*pi* 妣), and "son" (*tzu* 子). These kinship terms are placed in quotation marks to indicate that they were classificatory, not just biological.

To locate such generational titles on the royal family tree, thus establishing the period of the inscriptions in which they occur, is, however, less easy than it may sound. The difficulties derive partly from our inability to identify with certainty those lesser branches and twigs of the Shang genealogy that are recorded in the inscriptions but not in *Shih-chi*.[13] And they derive more seriously from the ambiguity of the kin titles used in the inscriptions. *Tsu* and *pi* are by their nature ambiguous since they were used to refer to any grandfather and grandmother two or more generations distant from the living king; thus, both Wu Ting (K21)* in period I and Ti Hsin (K28) in period Vb referred to K13 as Tsu Hsin, "Grandfather Hsin"; he was Wu Ting's great-grandfather, but he was Ti Hsin's great-great-great-great-great-great-great-grandfather.[14] The titles *tsu* and *pi*, therefore, cannot be used to date an inscription with certainty. The same ambiguity plagues even the generationally specific titles like father and mother. For example, Fu Ting was a period II appellation for Wu Ting (K21), a period IVa appellation for Keng Ting (K24), and a period V appellation for Wen Wu Ting (K26).[15] Fu Yi was a period I appellation for Hsiao Yi (K20) and a period IVb appellation for Wu Yi (K25).[16] Scholars have provided lists of the various kin titles that appear in each period,[17] but the generational recurrence of titles such as Fu Keng and Hsiung Ting prevents these lists—which in any event may reflect the author's own interpretations of several controversial cases—from serving as automatic touchstones for periodization. There are few, if any, kinship terms that by themselves may be used to date an inscription unequivocally. Each kin term and the context in which it appears must be considered individually.

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[12] The best introduction to the use of ancestral and kin titles is Ch'en Meng-chia (1956), pp. 367–501. It is to Wang Kuo-wei ([1923], ch. 9) that the great credit goes for first using the ancestral titles to periodize the inscriptions; his study was first published in 1917 (for the bibliographical details, see Hu Hou-hsüan [1952], 426).

[13] The names of the dead Shang kings recorded in the oracle inscriptions have, in most cases, been equated to those given by Ssu-ma Ch'ien in *Shih-chi*, ch. 3, "Yin pen-chi"; the generational relationships recorded in *Shih-chi*, are confirmed by the kinship and sacrificial titles employed in the inscriptions. The question of whether the Shang genealogy, especially its more remote sections, was a true king list, as Ssu-ma Ch'ien regarded it, or a retrospective invention of the late Shang kings (cf. Kane [1973], p. 357) has no bearing on its use as a dating criterion for the historical period. For a detailed comparison of the genealogical data contained in the inscriptions and in *Shih-chi*, see the notes to tables 1 and 15.

*The K numbers refer to the kings' accession order. K21, for example, refers to the twenty-first Shang king after and including the dynasty founder, known as T'ang or Ta Yi (K1). The names of the kings and their K numbers are given in table 1. The circled numbers indicate the order by which dead kings received sacrifice (see n. 21).

The ambiguity of the individual titles requires us to analyze title clusters. And our analysis depends upon the assumption that the Shang worshipped their ancestors in groups that were selected according to one or more rational principles—rational, that is, in terms of Shang social structure and religious belief. Two principles may be discerned:

1. Vertical. Some divinations group the ancestors of certain segments of the *ta-tsung* 大宗, or main direct lineage, in their appropriate order.[18] For example, the charge "On the next yi-yu (day 22), we will offer *yu* and *fa* sacrifice to (the spirits of)[19] the five ancestral altars: Shang Chia, Ch'eng, Ta Ting, Ta Chia, Tsu Yi"[20] lists the ancestors, all of the main lineage, in the order: ①; K1 ⑦; K2 ⑧; K3 ⑨; K12 ⑱.[21] In such cases, generational order was normally maintained, the ancestors being listed in order of decreasing seniority.[22]

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[14] For period I inscriptions, see S527.1; for period V inscriptions, see S528.3.

[15] For period I inscriptions, see S547.4–548.3; for period IVa, S548.3–549.2; for period V, S549.2.

[16] For period I inscriptions, see S545.4–547.3; for period IVb, S547.3. Note that many of these inscriptions—such as *Chia-pien* 2046; *Ch'ien-pien* 6.19.5, *Jimbun* 3013; 3014; 3015; 3017—dated by Shima's placement in *Sōrui* to period IV, are RFG divinations which would be dated by many scholars to period I or Ib (see ch. 2, n. 18), with Fu Yi again referring to Hsiao Yi (K21); cf. Yen Yi-p'ing (1961), pp. 516, 519.

[17] Tung (1933), facing p. 344; (1965), facing p. 78; Kaizuka and Itō (1953), facing p. 78; Ch'en Meng-chia (1956), p. 156; *Jimbun shakubun*, English preface, p. 17. Cf. S555, 556.

[18] To belong to the *ta-tsung*, a dead king had to have both a father and a son who had been or were kings; the predynastic ancestors of the main lineage were also regarded as members of the *ta-tsung*. For an introduction to the *ta-tsung* system, see Ch'en Meng-chia (1956), pp. 460–468; Cheng Te-k'un (1960), p. 221; Huang Jan-wei (1967), pp. 89–119; Ho (1975), p. 292.

[19] For "ancestral spirits" as a translation of 丅 see ch. 1, n. 71. For a series of rituals offered to *ta-tsung* ancestors, see, for example, *Ts'ui-pien* 176 (fig. 18).

[20] *Ping-pien* 41.19.

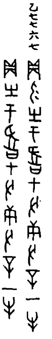
[21] The circled numbers indicate the ritual order in which ancestors (not all of whom had necessarily come to the throne) received sacrifice in the sacrificial schedules of periods IIb and V; on the sacrifice schedule, see Ch'en Meng-chia (1956), pp. 386–392. These circled numbers, together with their corresponding K numbers (see the note at the bottom of p. 95), are given in tables 1 and 15.

[22] E.g., *Chia-t'u* 87; *Ping-pien* 204.21; *Chui-ho* 15 (S516.3, but wrongly cited as *Ho-pien* 15); *Hou-pien* 1.20.5 (S526.1); *Ts'ui-pien* 112 (S516.3); *Yi-ts'un* 917 (S516.3). There are exceptions, in which ancestors were listed in order of increasing, rather than decreasing, seniority; e.g., *K'u-fang* 1206 (D); 1316 (D); *Nan-pei*, "Ming" 352 (D) (all S341.3); *Yi-ts'un* 536 (S524.2); I have not discovered an explanation for this reversal of what I take to be the more normal order.

2. Horizontal. Some divinations group ancestors of the same generation; *Yi-pien* 7767, to be discussed in a moment, is a good example. In these cases too the ancestors were listed according to the order in which they had acceded to the throne.

These principles were not followed invariably, but they represent what we conceive to have been the rational norm. If we find, for example, reference to Hsiang(?) Chia, Fu Keng, and Fu Hsin in the same inscription (as in *Yi-pien* 7767), we assume that they are linked by at least one of these principles. In this case, the horizontal principle seems most appropriate; it is neater to assume that the ancestors belong to the same generation and are thus presumably Ssu-ma Ch'ien's Yang Chia (K17), P'an Keng (K18), and Hsiao Hsin (K19) rather than T'ai Chia (K3) (or Wu Chia [K14]), P'an Keng (K18), and Hsiao Hsin (K19). There is no way to prove that the Shang did not on occasion scramble their ancestors irrationally; one can imagine that they might have done so in a desperate attempt to identify the right combination of malevolent powers that might be plaguing them. But even if this happened, the order imposed by the specific generational titles—"father," "mother," "brother," and "son"—greatly reduces the chance that we would not recognize such scrambling. That is, in this case, Fu Keng and Fu Hsin have to belong to the same generation; if a Fu Keng were to come from the previous generation, he would have to be called Tsu Keng. In short, dating of the inscriptions by title depends upon the assumption that the system of sacrifice was genealogically rational; but the presence of such rationality must be tested in each case.

Given the fundamental importance of the ancestral titles, a detailed example of how they are used to date an inscription will not be out of place. A pair of complementary charges on the right and left hypoplastrons of *Yi-pien* 7767 (S532.3) reads: (1) "Divined: '(We) should offer one bovine in *yu* sacrifice to Hsiang(?) Chia,[23] Fu Keng, and Fu Hsin'" / (2) "Divined: '(We) should not offer one bovine in *yu* sacrifice to Hsiang Chia, Fu Keng, and Fu Hsin.'" None of these titles appears in the *Shih-chi* genealogy; how, then, can we relate them to Ssu-ma Ch'ien's list of Shang kings?



The ritual, cyclical names, which were transmitted to Ssu-ma Ch'ien with considerable accuracy (see table 15 and its notes) provide the necessary clues. The appellation Hsiang Chia must be related to one of Ssu-ma Ch'ien's Chia kings; Fu Keng, to one of his Keng kings; Fu Hsin, to one of his Hsin kings. The possible candidates are listed in table 16. An asterisk marks those kings which we can automatically exclude from consideration in this case. It is highly unlikely, for example, that Fu Keng could refer to T'ai Keng (K5); any inscription which referred to him as "father" would have to have been made in the reigns of Hsiao Chia (K6), T'ai Wu (K7), or Yung Chi (K8), eight or more generations before the period for which we have oracle inscriptions.[24] Ti Hsin (K28) may be excluded in the same way; we have, so far, no evidence of any postconquest Shang oracle inscriptions made by Ti Hsin's son, Wu Keng.[25]

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[23] On the readings proposed for the graph [illegible] (= [illegible] ?) and its graphic evolution, see Shima (1958), p. 72; Takashima (1973), p. 358, n. 3.

[24] Few, if any, oracle inscriptions from the An-yang region predate the reign of Wu Ting (K21). Following the view that the Shang moved their capital to Hsiao-t'un during the reign of P'an Keng (on this point, see the Preface), scholars have expected to find inscriptions from the reigns of the three kings preceding Wu Ting (e.g., *T'ung-tsuan*, preface, p. 2b). But this has not been confirmed by the ancestral titles. To

We may further limit the possible candidates by assembling other inscriptions in which they appear with other ancestors of the same cyclical name. Any Chia ancestor recorded in the same divination charge with Hsiang Chia, for example, cannot have been Hsiang Chia. Using the information given in table 17, we may thus exclude from the list of possible referents in table 16 Ho Tan Chia (K11), Ch'iang Chia (K14), and Tsu Chia (K23), and we are left with the possibility that Hsiang Chia refers to T'ai Chia (K3), Hsiao Chia (K6)—both already excluded as too ancient—or Yang Chia (K17), the most likely candidate.

If we attempt to apply similar logic to Fu Keng and Fu Hsin—that is, to study the inscriptions in which they are recorded jointly with other Keng and Hsin ancestors—we reach an impasse; there are no such inscriptions. But we may pursue these two by turning to the *Shih-chi* genealogy and asking the simple question: At what points in the family tree do we find a situation where a Shang king, to whose ancestors the inscription refers, would have been able to refer to two "fathers," Keng and Hsin, in the generation immediately preceding his own? The entries in the right-hand column of table 18 indicate that only in period I (and possibly III) were there Keng and Hsin "fathers" who could have been worshipped jointly. (The putative Fu Hsin of period III, not listed in *Shih-chi* and whose

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place a divination record in the reigns of P'an Keng (K18), Hsiao Hsin (K19), or Hsiao Yi (K20), we would need to find an inscription (or inscriptions on the same bone or shell) which, on the basis of calligraphy, epigraphy, diviners' names, and other considerations, would be dated to Tung's period I and which made reference to Fu Ting (K15) *and* Fu Keng (K16). No such inscription has yet been found. Tung and his supporters have dated one lunar eclipse inscription to 27 March 1373 B.C., which he would place in the twenty-sixth year of P'an Keng (K18) (*Ping-pien* 57, *k'ao-shih*, pp. 90–93). Even if this absolute date were accepted (and there are reasons for dating the eclipse considerably later [see appendix 4, sec. 4]), the question of whether P'an Keng was on the throne at that time depends upon a series of assumptions that are, in my view, unwarranted. Similar considerations apply to Tung's attempt to date certain inscriptions (e.g., *Chia-pien* 2106, *k'ao-shih*, p. 265) prior to Wu Ting's reign on the basis of problematical calendrical reconstructions (cf. ch. 3, n. 109). On the basis of calligraphy, epigraphy, initial preparation, and hollow shapes, Liu Yüan-lin (1974), pp. 119–121, plates 12.1–3, 18.1, has argued that a few scapula fragments (e.g., 5.2.66; *Chia-pien* 2342; 2875) predate the reign of Wu Ting. Their form is certainly primitive (see n. 150), but the possibility that they represent the work of untutored hands or the remnants of an earlier tradition cannot be excluded; there is nothing about them which specifically requires a pre-Wu Ting date. The lack of oracle inscriptions from the generation of P'an Keng, Hsiao Hsin, and Hsiao Yi suggests either (1) that these three kings did not record their inscriptions in the same way that Wu Ting did, or (2) that their oracle inscriptions have not been found, or (3) that their inscriptions contain no recognizable dating criteria (specifically, ancestral titles), or (4) that these three kings did not have their capital in the An-yang region, or (5) various combinations of the above. The matter bears on the eleven supposedly royal tombs at Hsi-pei-kang 西北岡 (Chang Kwang-chih [1964], pp. 46–47; Soper [1966], p. 27; Kane [1975], pp. 103–106), for if the three pre-Wu Ting kings did not reign in this region they may not have been buried there.

[25] The proposal of Miyazaki (1970), pp. 277–278, that some of the oracle-bone inscriptions found at Hsiao-t'un might have been divined by the rulers of the Chou state of Wei 衛 is without merit; the Wei rulers could not have referred to themselves as *wang*, "king," a term that occurs frequently as the subject of the charge in inscriptions from all periods.

existence is in dispute, may, in fact, be excluded from consideration; he could not have belonged to the triumvirate of ancestors recorded by *Yi-pien* 7767.)[26] The information in table 18 suggests, therefore, that we are dealing with a period I inscription.

To return now to Hsiang Chia. If he were Ssu-ma Ch'ien's T'ai Chia (K3) or Hsiao Chia (K6), there are no suitable Keng or Hsin "fathers" who could have been associated with him in any rational way. If he were Yang Chia (K17), however, *Yi-pien* 7767 could then be understood as a period I divination made for Wu Ting (K21) about sacrifice to his three uncles or classificatory "fathers," Hsiang Chia (K17), Fu Keng (K18), and Fu Hsin (K19), who would be listed, as is normal in Shang inscriptions, in the order in which they ascended the throne: Yang Chia (K17), P'an Keng (K18), and Hsiao Hsin (K19).

We cannot tell why, in this particular case, Yang Chia (K17) was referred to as Hsiang Chia rather than as "Father" Chia, as were his two brothers, "Father" Keng and "Father" Hsin.[27] On occasion, in period I, he was called "father" in the company of his brothers.[28] That the three uncles did form a triumvirate is confirmed by a group of

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[26] Ch'en Meng-chia (1956), p. 456 (cf. *Chia-pien* 2622, *k'ao-shih*, p. 333), and Yen Yi-p'ing (1961), p. 528, have argued that certain period III inscriptions which record a Fu Hsin refer to a brother of the period II kings, Tsu Keng (K22) and Tsu Chia (K23); presumably he would have died before he could come to the throne. The validity of this interpretation, which is based upon secondary criteria such as diviners' names and calligraphy, has been challenged (Shima [1958], p. 47). The possibility that on the basis of ancestral titles alone, *Yi-pien* 7767 could be dated to period III, being a divination by Kings Lin Hsin (K23A) or Keng Ting (K24) to their three "fathers," Tsu Keng (K22), Tsu Chia (K23), and the Fu Hsin unknown to *Shih-chi*, is excluded by the fact that Hsiang Chia and Tsu Chia (K23) appear in the same inscriptions (table 17).

[27] Yen Yi-p'ing (1961), pp. 487–488, argues that "distant ancestors"—that is, distant in time from the diviner—had to be called by nonkin titles. Thus, a distant ancestor like Yung Chi 雍己 (K8) was always referred to by his nonkin name (in the inscriptions he appears as Lü Chi 呂己), never as Tsu Chi 祖己. Conversely, Yen has argued that a reference to K18 as P'an Keng (as in *Yi-pien* 8660 [S533.1]) rather than, say, Fu Keng necessarily means that the divination was made some distance in time after P'an Keng's death. If this is a true rule, then it is conceivable that *Yi-pien* 7767 was made late in period I, when Hsiang Chia was felt to be more distant and his kin appellation, *fu*, was accordingly dispensed with. Unfortunately, Yen does not define how distant a "distant ancestor" must be before the rule applies; his implication ([1961], p. 517) that a great-grandfather (like Hsiao Yi [K20]) was always called by a nonkin term is clearly refuted by the use of "Tsu Yi" to refer to Wu Ting's great-great-grandfather, K12 (e.g., *Ping-pien* 41.19; *Hou-pien* 1.28.3; *Yi-ts'un* 873 [all S522.4]). Similar considerations apply to the use of Tsu Hsin for K13 (e.g., *Ts'ui-pien* 250 [S527.4]). Yen's rule, nevertheless, has some validity; beyond the one- and two-generation range of *fu*, "father," and *tsu*, "grandfather," the Shang had to resort to other systems of nomenclature for their ancestors or fall into some confusion. No ancestor prior to Tsu Yi (K12) is, in fact, referred to as *tsu*. That the naming system showed strain as ancestors grew more distant is indicated by the fact that Tsu Yi (K12), one of the ancestors whose name breaks Yen's rule, was also called Kao Tsu Yi 高祖乙 (Ikeda [1964], 1.3.7) and Hsia Yi 下乙 (*Ping-pien* 304.21; cf. Ikeda [1964], 1.8.2; Chang Tsung-tung [1970], p. 203, n. 12). Presumably the Shang were seeking ways to distinguish between Tsu Yi (K12) and Hsiao Yi (K20). By period V (e.g., *Hou-pien 1.20.5* [S526.1]), the latter was clearly in possession of the appellation "Tsu Yi"—again controverting Yen's rule of distance, for Hsiao Yi would at that time have been great-great-great-great-grandfather to Ti Yi (K27); yet from at least period IIb on (S533.2), when he was a "closer" ancestor, he had already been called Hsiao Yi. For other discussions of the way ancestral titles changed with generations, see Ch'ü Wan-li (1948), p. 223; Tung (1951), p. 9.

[28] *Hou-pien* 1.25.9 concerns the offering of single rams to the three "fathers," Fu Chia, Fu Keng, and Fu Hsin; the inscription has generally been dated to period I (Ikeda [1964], 1.25.9;

inscriptions, also from period I, which seek to determine whether Hsiang Chia, Fu Keng, or Fu Hsin was cursing the king.[29] That Hsiang Chia should be identified with *Shih-chi*'s Yang Chia is confirmed by the order in which the ancestors are listed in *T'ung-tsuan* 118 (S532.3) (cf. table 17): Hsiang Chia is listed after K14 and K16 and before a king (presumably K18) on a missing fragment, who in turn comes before K19. On the assumption that the inscriptions were genealogically rational, it is clear that Hsiang Chia must correspond to Ssu-ma Ch'ien's Yang Chia (K17).[30]

No experienced scholar attempting to date an inscription would pursue this tedious route. Most of the alternatives proposed above would automatically be excluded on the basis of previous knowledge of ancestral groupings. Furthermore, other criteria, such as diviners' names and calligraphy, could have been applied to provide a far swifter and indeed, in this case, virtually instantaneous solution. For example, the period I court diviners, Pin and Cheng, appear elsewhere on *Yi-pien* 7767; the calligraphy is of the period I style; and the plastron was found in pit YH127, a pure period I and Royal Family group find. But I have pursued this tedious exercise to demonstrate how ancestral titles have been used to determine in the first place that Pin and Cheng were period I diviners, that the calligraphy of this inscription was period I calligraphy, and that YH 127 did contain period I inscriptions. For it is only from such a determination that such secondary criteria as diviners' names, calligraphy or pit provenance derive.

4.3.1.2 *The Diviners*

It is a basic assumption that inscriptions found on the same bone or shell should be dated to the same period. Thus it is assumed that if one of the inscriptions on *Yi-pien* 7767 is dated to period I on the basis of the ancestral titles, then all other inscriptions on that plastron may also be dated to period I and that their other characteristic features may be taken as secondary criteria for dating period I inscriptions.[31]

Jimbun shakubun, English preface, p. 15; cf. its placement at S550.1), the three "fathers" being taken as Yang Chia, P'an Keng, and Hsiao Hsin; Lo Chen-yü was the first to make this identification (Wang Kuo-wei [1923], ch. 9, p. 13b). The same three "fathers" appear in *Ogawa 1.3*, also dated to period I. And all four "fathers" of that generation—Chia, Keng, Hsin, and Yi—were recorded on the back of the set, *Ping-pien* 12–21 (sec. 3.7).

[29] *Ping-pien* 197.15–19.

[30] Cf. *T'ung-tsuan* 118, *k'ao-shih*, pp. 22b–23a. Menzies and Kuo Mo-jo apparently arrived at this identification at about the same time (see Jung Keng [1947], p. 24).

[31] The assumption that inscriptions found on the same bone or shell may be dated to the same period (cf. n. 33), reasonable in itself, appears to be supported by the evidence of the *kan-chih* dates which, on the same oracle bone, generally lie near one another in time. It is true that, in the absence of year numbers for most inscriptions, we cannot be absolutely certain that any series of inscriptions was not in fact started in one year, laid aside for, say, twenty years, and then finished in what was coincidentally the proper sequence in a twenty-first year. Kuo Mo-jo (1972), p. 3, has suggested, in fact, that a scapula may have been used in one period, stored, then reused in a later period after the original inscriptions had been erased. Even if the suggestion, which has been questioned (Ch'iu [1972], p. 43), is accepted, the situation it describes is virtually unique. As a general rule, scapulas and plastrons do not seem to have been used for divination over

Thus, *Yi-pien* 7767 records two divinations conducted by the diviner Cheng and one by the diviner Pin, raising the strong presumption that these two diviners were active in period I. Detailed study, not necessary to reproduce here, indicates that this is correct: the ancestral titles, calligraphy, epigraphy, divination content, pit provenance, and so on associated with the divinations recorded by Pin and Cheng indicate that these two diviners were indeed contemporaries, active during the reign of Wu Ting.[32]

Bones or shells on which two or more diviners' names appear are particularly valuable for periodization since they enable us to establish groups of diviners who apparently served as contemporaries.[33] *Chia-t'u 80*, for example, one of the four plastrons upon which Tung based his 1931 study of diviners, contains the names of six diviners who are all accordingly dated to the same period, period I. And it is reasonable to assume that other inscriptions and other diviners which appear on other bones or shells where one or more of these six diviners is represented as a diviner may also be dated to the same period.[34]

Diviners' names have become a routine dating criterion since Tung Tso-pin first recognized these names for what they were in 1931.[35] Apart from disagreement about the dating of the Royal Family group diviners and a few others, oracle-bone scholars have generally agreed on the periods in which the other diviners, especially those who appear frequently, were active.[36] Table 6 lists the major diviners' names by period. Whether these

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a period of more than about a year. For example, *Chia-t'u* 80 records twenty-three "ten-day week" charges running from the tenth month of one year, through the intercalary thirteenth month, and into the fifth month of the next year; thus, the plastron (which is incomplete) was used for at least nine months. Since this was the third plastron in a set of five, we may assume that four other plastrons, with crack numbers 1, 2, 4, and 5, were also used in the same order over the nine-month period.

[32] For a list of the inscriptions which record the divinations of Cheng 爭 and Pin 𡧊, see S561–562, 557–558. For a detailed study of these divinations and their implications for dating, see Jao (1959), pp. 241–344, 345–443. For a listing (incomplete) of the oracle bones on which the two diviners appear jointly, see ibid., p. 1214. Jao's hypothesis (ibid., p. 243) that Pin was still alive in period IIb depends upon the uncertain assumption that the Pin who was ordered to act in *Fu-yin*, "Jen" *48* (S276.3) of period IIb was the same person as the diviner Pin (on this problem, see n. 35). In any event, there is no unequivocal evidence that Pin was still *divining* after period I. Similar considerations apply to Jao's view that the diviners Ta 大 and Hsiung 兄 were active in periods I and II (ibid., pp. 812, 879). For the argument that Cheng served into period II, see n. 39, example 4, below.

[33] Cf. n. 31. Jao (1959), pp. 1213–1236, lists diviners recorded on the same bone or shell; *Jimbun shakubun*, introduction, p. 40, provides a partial supplement. On diviner groups, see sec. 2.2.1.1.

[34] Tung (1931), esp. pp. 437–440; cf. *Jimbun shakubun*, introduction, p. 33.

[35] The acceptance of Tung's thesis was not immediate. See, for example, Ch'en Ch'un-hsien (1933) or Hopkins (1934), pp. 80–81, who suggested, respectively, that the graphs which Tung identified as diviners' names referred to sacred music or to the topic being divined. A good critical summary of Tung's contribution ([1931]; [1933], pp. 344–350) is given by Kaizuka (1946), pp. 208–209 (for a Chinese translation, see *Ta-lu tsa-chih*, 17.1 [1958], p. 28). Jao's attempt to challenge Tung's fundamental premise—that individual diviners may be associated with limited periods—rests upon the unverifiable assumption that every occurrence of a diviner's name found *in a charge* refers to the diviner who bore that name (cf. the discussion in n. 37). *Jimbun shakubun*, introduction, pp. 27–41, provides a convincing critique of Jao's thesis.

[36] On the RFG, see ch. 2, n. 18. Jao's attempts to place four of Tung's period V diviners in period I is effectively refuted by *Jimbun shakubun*, introduction, pp. 32–33. For another dispute, see n. 44.

diviners' names were the names of only one man or of a group of men is not clear.[37] But the diviner (or diviners) bearing a single name appears to have been active as a diviner in clearly discernible periods; thus the possibility that more than one diviner bore the same name does not seriously invalidate diviners' names as a dating criterion.[38]

On the other hand, it is not certain that the diviners' careers were rigidly compartmentalized by reign and period; the fact that a diviner's inscriptions which contain touchstone ancestral titles may all be dated to the same period does not preclude the possibility that some of his divinations without such ancestral titles may have spilled over into an earlier or later period. The question of spill-over requires more study. Scholars, using such secondary criteria as hollow shape and writing style, have suggested that certain diviners practiced in periods adjacent to their main one; but no consensus has yet been reached on the extent or significance of this phenomenon, or on how its existence may be established unequivocally.[39] The fact that ancestral titles rarely, if ever, confirm this

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[37] Most Shang names recorded in the inscriptions are thought to have been generic rather than the exclusive possession of individuals; they might refer to individuals, statelets and their leaders, places, the population of those statelets or places, and even, perhaps, the local powers worshipped there. (The basic studies are Chang Ping-ch'üan [1967a] and Hayashi Minao [1968].) This raises the possibility that one diviner's name might have been used by several diviners from the same lineage or region who might have transmitted the post from father to son. (Hsü Chin-hsiung [1974], pp. 154, 196–202, has argued, on the basis of hollow shapes and other secondary criteria, that there were two diviners named Tui 𠂤, one active in period I, the other in period IV.) There is little doubt that Shang titles, and probably Shang names, were inherited in this way. The question of the diviners' character and status, and the rationale for their changes in office, will be treated extensively in *Studies*.

[38] For the view that diviners' names are an invalid dating criterion, see Lu Shih-hsien (1961), p. 72.1; Chang Ping-ch'üan (1967a), p. 774; Hsü Chin-hsiung (1974), p. 203.

[39] Hsü Chin-hsiung (1974), p. 203 (cf. his initial study [1972]) finds that diviners who served in two periods were "quite common in all five periods," and that those who served only in one period were the exception. Further study may eventually confirm his conclusions, but at present, plausible though the idea is, much of the evidence for such spill-over is unsupported by ancestral titles, depends on secondary criteria such as calligraphy and hollow shapes, or applies only to a small percentage of any diviner's inscriptions. The following examples will introduce the scholarship, which cannot be pursued in an introductory work of this nature: (1) The diviner(s) Ta 大 may have served from the end of period I to early III (Hsü Chin-hsiung [1974], p. 91; see too Ch'en Meng-chia [1956], p. 199; the view of Jao, cited in n. 32 above; Itō [1975], p. 84, n. 6 and p. 126, n. 7; cf. S566–567, 573). (2) The diviner Ch'u 出 may have straddled periods I and IIa (Jao [1959], pp. 845–846; Hsü Chin-hsiung [1972], p. 4a). (3) Lü 旅, K'ou 口, and Ho 何 may have practiced in periods II and III, and possibly in period I (Yen Yi-p'ing [1961], p. 521; Hsü Chin-hsiung [1974], pp. 92–93, 172–184, 193–196; cf. Chang Tsung-tung [1970], p. 22, nn. 1–4, who cites inscriptions which he believes indicate that Ho, Ch'u, and Ta divined in periods I and III, and that K'ou divined in II and III). (4) The argument that the period I diviner Cheng 爭 served into period II (e.g., Tung [1952], p. 288; Yen Yi-p'ing [1961], p. 506) depends primarily upon an uncertain eclipse date (*Ping-pien* 59.1) and the unwarranted assumption that we know the absolute dates for Wu Ting's reign (cf. ch. 3, n. 109). Hsü Chin-hsiung (1974), p. 86, however, also argues for this spill-over on the basis of hollow shapes. Kaizuka and Itō (*Jimbun shakubun*, introduction, p. 32) cite *Ts'ui-pien* 281 as evidence that Cheng was still divining in period II. But this is uncertain for two reasons. First, it is not certain that the diviner is Cheng; the graph is ambiguous and S533.2 correctly records it with a question mark. Second, they date the inscription to period II because Hsiao Yi (K20) was, in period I, called Fu Yi; since the inscription contains a Hsiao Yi, it cannot be dated to period I. But while it is true that no other period I inscription contains the title Hsiao Yi (see S533.2), this does not prove that the present inscription belongs in period II; at best we can only say that it shares that particular

spill-over is not a strong argument against it, for the number of nonambiguous ancestral titles we possess for any one diviner is relatively small.[40] It must be stressed that for every diviner there are a great many inscriptions which we date to the diviner's main period of activity primarily on negative grounds, that is, because we have no reason not to do so.

The possibility that certain diviners were active in only part of a period also needs more study.[41] In short, a diviner's name by itself provides only a floruit for an inscription. A diviner's name, unless it is accompanied by confirming evidence, is not of itself an infallible dating criterion. It only establishes the likelihood that one dating is to be preferred to another.

The omission of the diviner's name in the preface may also bear on the date of an inscription. The inscriptions of period I, II, and IIIa, as well as those of the Royal Family group, frequently record the diviners; the inscriptions of period IIIb and, with one possible exception, of period IV do not; no major diviners appear in period V (see table 6).[42] And it has been suggested that the diviner's name was recorded more frequently in period II than in period I.[43] It must be stressed, however, that many of the court-diviner inscriptions of period I and period II omit the diviner's name, as do those of the Royal Family group.[44] Table 7 reveals that the diviner's name might be omitted in all periods, but was more likely to be omitted in the later ones. The absence of a diviner's name, therefore, by no means permits an inscription to be dated; it may, at best, make one date more likely than another.

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feature with other period II inscriptions. It is reasonable to assume that the change in title from Fu Yi to Hsiao Yi took place at the start of IIa with the change of generations from Wu Ting (K21) to Tsu Keng (K22), when K20 ceased to be Fu Yi and became Hsiao Yi (instead of becoming, as one would have expected, Tsu Yi—a title which would have led to confusion with the other Tsu Yi [K12]). But we have no certainty that Hsiao Yi (K20) could not have been called Hsiao Yi even in period I while he was still technically a "father." For we have already seen that in period I, Ssu-ma Ch'ien's Yang Chia (K17) was called by both his kin name, Fu Chia, and his temple name, Hsiang (?) Chia (see nn. 27, 28). His brother, Hsiao Yi, could have been treated similarly. (5) The probability of diviner's spill-over would have been increased in a period of short reigns. Unfortunately, we have no contemporary information about the reign lengths of the kings in periods I to IV (see appendix 4, sec. 5); any conclusions based on this approach (e.g., the discussion of Kaizuka and Itō [1953], p. 50) are bound to be speculative.

[40] A glance at the initial pages for each diviner's entry in Jao (1959) will reveal how few touchstone ancestral inscriptions we possess.

[41] Tung (1945), pt. 2, ch. 3, pp. 26a–b, has suggested, for example, that diviners associated with divinations about the childbearing of Wu Ting's consorts may have been active in the first part of period I when the king was still fertile. Hsü Chin-hsiung (1974), p. 91, suggests that since the custom of using diviners' names was abandoned later, period III inscriptions which do record diviners' names should be placed in the first part of period III. These arguments, not conclusive in themselves, may eventually be supported by other evidence.

[42] Ch'en Meng-chia (1956), p. 142. Hsü Chin-hsiung (1974), p. 9, notes that period III inscriptions which do not record the diviner's name are generally on bone rather than shell and that their calligraphy is small and angular.

[43] Hsü Chin-hsiung (1974), p. 9.

[44] E.g., *Chia-pien* 786 (S76.2); *Ping-pien 3*; *Pu-tz'u* 16 (S452.1); *Shih-to* 2.185 (S364.2); *Yi-ts'un* 374 (S160.2); 375 (S194.3). For other examples, see table 7. It should be noted that Chang Tsung-tung [1970], pp. 24–27, has argued cogently for a group of divinerless inscriptions with a pronounced style of their own which he would date not to period IV but to IIa and early IIb. He cites as examples *Jimbun* 2258–2564 (with only one exception, not specified), which he would place not in period IV (where Kaizuka and Itō have placed them) but in period II. Chang's arguments may be summarized as follows: (1) The Fu Ting 父丁

4.3.1.3 *Calligraphy*

The writing style of the inscriptions may be analyzed for convenience under two separate headings: (1) calligraphic style, the manner in which the inscriptions were written; (2) epigraphic structure, the shapes and component elements which formed the individual graphs. Both criteria must be considered together when dating an inscription. The subject is complex and deserves a monograph in its own right. What follows merely adumbrates some of the issues and exemplifies some possible solutions.

It was another of Tung Tso-pin's major contributions to recognize that the calligraphy of the inscriptions varied by period. He provided a series of subjective phrases to describe the writing style of each period: that of period I, for example, was "characterized by the predominance of large and bold characters," that of period II was more "cautious and restrained." His descriptions, as he acknowledged, need to be greatly refined.[45] The evolution of oracle-bone calligraphy will not, in fact, be fully understood until a firmer, more objective methodology involving at least the following assumptions is applied to the data:

1. Since the diviners were not the engravers (sec. 2.9.3), we should not necessarily expect that calligraphic (or epigraphic) style changed precisely when the reign periods (and thus Tung's five periods) changed. An engraver might have carved inscriptions in periods I and II, for example, using similar writing style in both periods. It seems plausible, and it accords with the evidence, to think that spill-over occurred among engravers as well as diviners (sec. 4.3.1.2) and to conceive of Shang calligraphy evolving as one engraver gave way to another, rather than changing abruptly as one king succeeded another.[46] If, as is possible, the corps of Shang engravers was relatively small, further research may permit us to associate inscriptions with particular engravers and to date writing style not by periods, as we do now, but by the careers of engravers.[47]

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who appears in these inscriptions was clearly a powerful manes; he could not, therefore, have been the short-lived K'ang Ting (K24) who reigned only eight years, but must have been Wu Ting (K21), who reigned fifty-nine years (these figures are taken from Tung [1945]; for estimates of reign lengths not based on traditional sources, see appendix 4, sec. 5). The genealogical sequence of *Nan-pei*, "Ming" 477 (D) (S516.3), supports such an identification. (2) The Hsiung Chi 兄己 and Hsiung Keng 兄庚 found in these inscriptions refer to Tsu Chi (㉘ in the sacrificial cycle) and Tsu Keng (K22), indicating a IIa or early IIb date. (3) Numerous personalities whom we normally associate with period I were active in these inscriptions. (4) Many of the graph forms are identical with those of period I. (5) The calligraphy resembles the "strong" calligraphy of period I. (6) The great "purification" rituals (*yü* 御) against ancestral curses, offered to the ancestors in genealogical sequence (e.g., *Nan-pei*, "Ming" 432 [D] [S52.3]), correspond to period IIb practice.

[45] For the various characterizations, originally given in Tung (1933), pp. 421–423, see nn. 54, 55, 61, 63, and 66. Tung himself admitted that the use of calligraphic style to date the inscriptions was a subtle art and that his criteria were only a sketch of what was needed ([1965], pp. 100–101, 102).

[46] Cf. Ch'en Meng-chia (1956), pp. 14, 155. For evidence of epigraphic spill-over, see the numerous cases of overlapping usage in table 26. Even if a change of kings saw a wholesale change of diviners and their staffs, it is doubtful that new and orthodox graph forms could have been established overnight without lapse or error. Further, it is unlikely that teams of engraving clerks were shuttled in and out of the palace on the accession of a new king.

[47] See ch. 2, nn. 104, 108.

2. Given the variety of styles found on the same shell,[48] it is clear that we are not dealing with a single calligraphic (or epigraphic) tradition, but with a variety of contemporaneous traditions, the work, presumably, of a number of contemporary engravers. This being the case, it is not always useful, or even possible, to characterize the writing styles of one period by a single general description. It is more in accord with the evidence to look for a series of different traditions in any one period and then to consider how they evolved in subsequent periods.

3. Any calligraphic judgments must depend, as far as possible, upon touchstone inscriptions which may be firmly dated to a certain period by the ancestral titles they contain (sec. 4.3.1.1) or, failing that, by the diviner's name (sec. 4.3.1.2).[49]

4. Subjective or imprecise criteria cannot always be avoided, but they should be used as rarely as possible. We may all, when other criteria are lacking, feel that a certain inscription belongs in period IV, say, because it looks like a period IV inscription. But such feelings cannot be used to construct a general theory of calligraphic evolution, which must be based upon specific, objective criteria that derive from touchstone inscriptions. Connoisseurship is not enough.

5. Calligraphic and epigraphic considerations yield descriptive generalizations for any period, not prescriptive rules.

The subject of calligraphic evolution is highly technical. Here I offer only a prolegomenon to introduce the reader to the major calligraphic traditions and the way they evolved. I do so by categorizing touchstone inscriptions on the basis of four criteria:

1. The size of the graphs. To characterize the size of the graphs in an inscription, I measure the longest vertical stroke of the character **tieng* 貞, "to divine," found in most prefaces.[50] Graphs are said to be large if that stroke is over 10 mm. in length, medium if it is 6 to 10 mm. long, small if it is below 6 mm. in length.[51]

2. The skill with which the graphs were engraved. Here I use the terms "copperplate," "intermediate skill," and "crude" to distinguish levels of competence. These are subjective judgments, but the only difficulty in applying them may be expected in separating the intermediate-skill graphs from those engraved with greater or lesser skill. I use the term "copperplate" to refer to the careful, well-formed graphs found on the display inscriptions of period I, which, for analytical purposes, I take as the model against which other graphs may be compared.[52]

3. Stroke thickness. I regard stroke thickness as normal when it accords with the size

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[48] Table 19 indicates the variety of styles on *Ping-pien* 1 (on this case, cf. Li Yen [1967], pp. 2–3). Table 20 indicates the range of sizes found on *Ping-pien* 14; 18; 20; in each case, the smaller graph is less than half the size of the larger graph on the same plastron. Cf. ch. 2, nn. 104, 108.

[49] On touchstone inscriptions, see n. 1.

[50] See ch. 2, n. 7. If no **tieng* is present, I measure the height of the particle *ch'i* 其.

[51] Different graph size may not necessarily reflect the hand of a different engraver, but may, in certain cases on the same bone or shell, reflect the space available when the inscription was carved (cf. ch. 2, n. 90). Preliminary research suggests that the first divinations recorded on an oracle bone were written in a larger hand than those which followed (see ch. 3, n. 113).

[52] For display inscriptions, see ch. 2, n. 90.

of the graph, thick when it seems unnecessarily broad. The contrast is readily apparent in inscriptions with a **tieng* over 10 mm. long (table 21). The distinction between thick and normal strokes is harder to draw, however, as graphs grow smaller; until more precise analyses are possible, the criterion in these cases is frequently too subjective to be useful.[53]

4. "Page design." This refers to the care with which the graphs were placed on the surface of the bone or shell. I discern two major categories: a neat or compact layout and a less-ordered and more open layout. Subjective though this criterion is, there should be little dispute in most cases about which term to apply.

Compared to the impressionistic language of calligraphic appreciation that has dominated the field so far, the criteria above will appear flat and mechanical. This is their advantage. Doubtless in need of improvement, they permit us to categorize any inscription, with hope of general agreement, on the basis of its graph size, engraving skill, stroke thickness (when applicable), and layout. Using this approach, the general evolution of Shang calligraphy may be described as follows.

Three major traditions of copperplate writing—the large, the medium, and the small—were used to record the divinations of the court diviners of period I; all the inscriptions were characterized by careful, well-formed graphs (table 19). In almost every case, the page design of the bone or shell was neat and ordered. The large or medium graphs might be carved with thick or thin strokes; the small graphs were, of necessity, thinly carved.[54]

The medium and small copperplate traditions continued to thrive in period II; the large copperplate disappeared (table 22).[55] Page design, as well as the composition of the graphs themselves, was more compact and tight than it was for the period I inscriptions written in small calligraphy;[56] there is an impression of more efficient use of the bone or shell surface, of less "white space."[57] At the same time, however, there was some loss of precision in the writing of the graphs themselves; engraving appears to have become more perfunctory as it grew more routine.[58] A small, intermediate-skill calligraphy also existed in period II, its layout being neat or compact in some instances, less ordered or more open in others.[59]

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[53] For an initial attempt to study the grooves objectively, see ch. 2, n. 102. For subjective judgments, see n. 61 below. It is important to stress that, as Chou Hung-hsiang (1973), p. 181, has noted, stroke thickness, as seen in rubbings, may vary with the pressure applied by the rubbing maker or with the kind of ink and paper used.

[54] Tung ([1965], p. 101; cf. [1964], p. 88) described the style of period I as large, powerful, and extremely vigorous, "characterized by the predominance of large and bold characters. As a whole the strokes are strong and powerful." As he noted ([1933], p. 421), virtually all the inscriptions in *Ch'ien-pien*, ch. 7, are of this large and vigorous period I tradition; so too are *Ching-hua* 1–8. For examples, see figs. 8, 11–14, 16, 20. For drawings, conveniently assembled, of other period I calligraphy on shell, see *Jimbun shakubun*, p. 138, plate 1; p. 154, plate 2; p. 165, plate 3, etc.; for period I calligraphy on bone, see ibid., p. 283, plate 14; p. 297, plate 15; p. 305, plate 16, etc. Here, and in the notes that follow, I cite the drawings only for convenience; final reference must always be made to the rubbings and photographs and, where possible, to the oracle bone itself (sec. 5.6).

[55] Tung found the style of period II to be "cautious and restrained" ([1965], p. 101); "mainly medium and small in size, characters are carefully written and have an air of stately elegance" ([1964], p. 88).

[56] Contrast *Chia-pien 2869* from period II with *Ping-pien 14.7* or *18.7* from period I.

[57] E.g., *Hou-pien 1.7.8*; *1.7.11*; *Jimbun 1550*.

[58] E.g. *Hou-pien 1.2.3+1.2.7+1.3.4*; 1.7.7+1.7.9; *1.7.8; Jimbun* 1253; *1262;* 1293. For an example of period II writing style, see *Chui-hsin 304* (fig. 7).

By period III (table 23), the copperplate tradition survived only in its small form; page design was neat, the graphs becoming spikier and more elongated.[60] The intermediate-skill tradition existed in both its medium-size and small forms, the calligraphy looser than that of the copperplate tradition, but the layout well ordered. In all period III traditions, considerable white space existed around inscriptions in their orderly placement. By comparison with the small graphs of period II, the small graphs of period III appear wooden and lacking in energy.[61]

Due to my inability—which not all scholars share—to identify period IV inscriptions with certainty,[62] it is difficult to characterize the calligraphy of the period with assurance,

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[59] This tradition was also used by the engravers of the RFG inscriptions (e.g., *Ch'ien-pien 8.10.1* + *Chin-chang* 622 [D] + *Jimbun 3241* [for the rejoining, see *Jimbun shakubun*, p. 750, fig. 120] + *K'u-fang 1259* [D]; *Jimbun* 3127; *K'u-fang* 1988 [D]). If, as I believe, these inscriptions should be dated to period Ib, they represent another calligraphic tradition upon which the period II engravers drew. On the issues involved, see ch. 2, n. 18.

[60] E.g., *Chia-t'u* 42 (fig. 26).

[61] Tung found the style of period III to be decadent ([1965], p. 101), "characterized by a general decline in the quality of writing. Characters are childish and not refined" ([1964], p. 88). According to Ch'en Meng-chia (1956), p. 152, the style of period IIIa continued to be careful and strict like that of period IIb, but the carving had become rough and uneven, with the head and tail of every stroke tapered, the middle being thicker. By contrast, the calligraphy of periods IIIb and IV was scattered and looser than it had been in earlier periods, or than it was to be again in period V, but the carving of period IIIb was delicate and the strokes of equal width. These distinctions are subtle, and by no means evident in the rubbings of the graphs Ch'en cites.

[62] On this issue, cf. ch. 2, n. 18; ch. 4, n. 6. The number of inscriptions I can date to period IV on the basis of the ancestral titles they contain is zero. Period IVa inscriptions could presumably be dated by their references to K23A as Fu Hsin and K24 as Fu Ting; but these appellations, which never appear on the same oracle bone, are nonspecific: Fu Hsin could be a period I reference to K19, Fu Ting, a period II reference to K21 or a period Va reference to K26. Similarly, period IVb inscriptions would have to be dated by their references to K23A as Tsu Hsin, K24 as Tsu Ting, and K25 as Fu Yi; but again, with no triple ancestral clusters on the same bone which would exclude other candidates (e.g., K13, K19, K15, K21, K20, K27) for such titles, other datings are possible. (On the ambiguity of the titles for period IV, see *Jimbun* 1815, *shakubun*, p. 465, n. 1; Yen Yi-p'ing [1961], p. 515.) Most IV datings have been made on the basis of calligraphy, and it is argued on calligraphic grounds that Fu Ting, say, must be K24. But this puts the calligraphic cart before the ancestral horse. We cannot use calligraphic style, unsupported by firm ancestral identifications, to date ancestral titles that are themselves ambiguous. Yen Yi-p'ing, in fact, has dated a great many inscriptions to period IVa, rather than IVb, on calligraphic grounds (e.g., [1961], 141, 207–215, 218–219), presumably because these inscriptions are closer in style to the largeness and calligraphic looseness of IIIb, rather than to the smallness, neatness, and precision of V. But, lacking ancestral titles to date them positively, it is entirely possible that these inscriptions could be dated, on calligraphic grounds, to an earlier period. For example, *Hou-pien* 1.23.6 + *Ts'ui-pien* 9 has been dated by Ikeda (1964) to period IV, and by Yen (1961), p. 528, to IVa; but I see no firm reason for not dating the inscription, with its intermediate skill and medium-to-large-sized inscriptions, neatly arranged on the bone with some white space between them, to period III. Similarly, I would suggest that period II is as plausible as IVa for *Hou-pien* 1.4.17. Other examples of such uncertain period IV datings can readily be cited (cf. n. 44). Scholars have not hesitated to assign a period IV date to inscriptions on the basis of pit provenance, chiseled hollow shapes, absence of crack notations, or "typical period IV calligraphy," but the arguments are either circular—this bone comes from a period IV pit because it has period IV calligraphy, and it has period IV calligraphy because it comes from a period IV pit—or, at best, based upon an intuitive sense of what must be a period IV inscription. I do not reject this intuitive approach. There are inscriptions which I too instinctively

but it may presumably be regarded as transitional between that of periods III and V.[63] Figures 26 and 27 reproduce inscriptions which have been dated, without demur, to periods III+IV or IV. The situation is similar to that described for period III. One finds the small copperplate tradition and the medium-size intermediate-skill tradition, both arranged on the page with a sense of order, but with the smaller, better-formed graphs being placed in "paragraphs" that are isolated by areas of white space. The cruder, larger graphs seem more aimless, as if the engraver were less sure about their position or its relation to a larger design.[64] In general, in comparison to the earlier periods, the calligraphy of period III+IV seems more angular, geometric, and graceless, with more corners than curves.[65]

The standardized calligraphy of period V (table 24), with its uniformly small graphs (cf. table 21) arranged in regular, vertical columns, the inscriptions frequently packed closely together (fig. 10), is the most characteristic and immediately recognizable of that of any period.[66]

In summary, the general trend toward a neat, standard page design and neat, small standardized graphs (sec. 4.3.1.4)—one might almost say typography—reached its fruition in the routine divination inscriptions of period V (fig. 10).[67] That tradition was already present in period I, and it continued to thrive as the design of the inscriptions and graphs, together with the content of the inscriptions (sec. 4.3.1.12), became increasingly routinized. As table 25 indicates, the course of the Shang historical period saw a marked and consistent reduction in the number of calligraphic styles. The crude and intermediate-skill scripts and the large copperplate eventually died out, probably with the retirement or death of the engravers concerned. Calligraphic evolution, in short, was characterized not by the alternation, but by the gradual coalescence, of different writing styles (as well as different epigraphic traditions).[68] The coexistence of various traditions in periods I to IV means

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feel belong to period IV; but given the subjective nature of the judgment, which depends frequently upon calligraphic appreciations, we cannot use such inscriptions to specify the characteristics of period IV calligraphy with assurance. One has the impression, in fact, that many inscriptions have been placed in period IV because there was a shortage of inscriptions from this period; the shortage, disturbing to the classifying mind, caused scholars to propose a period IV dating as an initial hypothesis, and to cling to it, despite the lack of ancestral titles which would limit those inscriptions to period IV and to no other. But the shortage of period IV inscriptions may well be real, due perhaps to the short reigns of Wu Yi and Wen Wu Ting (though on this point there is no certainty; see appendix 4, sec. 5) or the accidents of discovery (sec. 4.3.3.3).

[63] Tung found the style of period IV to be vigorous ([1965], p. 101), a "revival of the lively, strong style" of period I ([1964], p. 88). He characterized ([1945], pt. 2, ch. 5, p. 3b) the calligraphy of period IV as "slender gold" (*shou-chin* 瘦金).

[64] E.g., small: *Jimbun* 1795; 1804; 1815; 1816; 1829; medium-size: *Jimbun* 1811 + *Ts'ui-pien* 317.

[65] E.g., the inscriptions reproduced by *Jimbun shakubun*, p. 506, plate 30; p. 510, fig. 80. One wonders if these changes may be related to the growing age of the period III engravers?

[66] Tung described the style of period V as strictly ordered ([1965], p. 101), the characters being "small in size but written and carved with the minutest precision" ([1964], p. 88).

[67] The significance of this calligraphic evolution will be considered in *Studies*. For a preliminary assessment, see Keightley (1973a), pp. 48–49; (1975c), pp. 50–52.

[68] This view, which conflicts with Tung's belief in the alternation of the Old and New Schools, will not be accepted by all. See, for example, Yi Kung (1957); see too ch. 2, n. 18. Kaizuka (1946), p. 237, however, thinks in terms of a later coalescence of the various period I traditions.

that calligraphic considerations are frequently not decisive in dating a particular inscription.

4.3.1.4 *Epigraphy*

No comprehensive study of the evolution of Shang graph forms has yet been made.[69] Table 26 presents the epigraphic changes found in forty-two graphs, most of them frequently encountered and thus likely to be useful as secondary dating criteria.[70] The twenty-two cyclical *kan-chih* graphs that appear in the preface of most inscriptions (table 7) are particularly useful in this regard; I have included thirteen of these in table 26, excluding the rest, which underwent little or no epigraphic change in the historical period.[71]

In making tables of this sort, it is particularly important to avoid circular reasoning. Many inscription dates given in commentaries depend (frequently without explicit acknowledgment) upon epigraphic rules laid down by Tung Tso-pin; one cannot use such datings to prove that Tung's rules are correct. In preparing table 26, therefore, I have done my best to rely on touchstone inscriptions[72] which may be dated by criteria unrelated to the epigraphy of the graph in question. Table 26 can, of course, be extended virtually indefinitely. It is to be hoped that an epigraphic dictionary of oracle-bone graph forms, similar, for example, to the work of Labat for Akkadian epigraphy,[73] will eventually be organized on such chronological lines. (A few entries in *Chia-ku wen-pien* [sec. 3.3.1] do give chronological data, but these are rare). In the interim, it is always possible to chart the evolution of any graph by working through the inscriptions provided by *Sōrui* (sec. 3.3.2) and checking Shima's transcriptions against the rubbings as necessary.

Some graphs grew purer and simpler with the passage of time; others more exotic and complex.[74] It is hard to assess the significance of these contradictory trends,[75] hard to discern any general principle of epigraphic change at work.[76] It is worth noting that the Shang engravers chose to complicate or ornament part of their script at a time when the period V calligraphy was becoming far smaller (tables 21 and 24) and when one would have expected them to simplify the graphs.

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[69] The initial study, limited and out of date, is Tung (1933), pp. 410–417. Li Hsiao-ting (1968), pp. 96–97, discusses the hypothetical evolution of the Shang graph forms. T'ang Lan (1965) and Li Hsiao-ting (1974) provide useful introductions to the question of epigraphic evolution as a whole.

[70] For a similar table, but covering only seven graphs, see Chang Tsung-tung (1970), p. 25.

[71] Tung's table showing the evolution of the cyclical graphs ([1933], facing p. 410) has been frequently reproduced: e.g., Kaizuka (1946), p. 222; Kaizuka and Itō (1953), table 2; Cheng Te-k'un (1960), p. 193; Tung (1965), facing p. 100. It is reproduced here as table 10. As will be clear from table 26, nos. 30–42, I do not accept his conclusions in all cases.

[72] On touchstone inscriptions, see n. 1.

[73] René Labat, *Manuel d'épigraphie akkadienne* (*signes*, *syllabaire*, *idéogrammes*), 4th ed. (Paris, 1963).

[74] Cf. Chang Ping-ch'üan (1952), p. 626. In some cases simplified, more symbolic graphs replaced more pictographic ones (e.g., table 26, nos. 2a, 2d); this is especially true in the case of the animal graphs (nos. 22–29) where the fuller form with the belly line was superseded by the abbreviated form without the belly line; cf. Kryukov (1973), p. 30, who notes that the graph for "horse" (no. 27) became more schematic as the full head was replaced by the eye and the details of mane, tail, and hooves were abbreviated (cf. n. 75). But in numerous other cases, a fuller, more baroque form, requiring more strokes, replaced or came to coexist with a simpler one (e.g., nos. 3 a, b; 5 a, b; 8 a, e; 9 a, b, d; 12 a, b; 13 a, c; 15 a, b; 16 a, c; 17 a, b; 18 a, b; 19 a, b). This was particularly true in the case of the cyclical graphs (nos. 32 a, b; 34 a, d; 35 a, b; 36 a, b; 41 a, c; 42 a, c). The period V forms of *keng*, *tzu*, *yin*, *ch'en*, *wei*, *shen*, and *yu* were notably more complicated and required more strokes than the period I forms.

[75] Ting Su (1966), p. 2b, has noted that the

It should also be remarked that in many cases the Chou bronze form of a graph follows the late Shang bone form, thus providing added support for the validity of these period V datings.[77] But in some cases the Chou bronze form derives from the Shang oracle-bone graph used in period III + IV rather than period V.[78] In many of these cases the bronze epigraphy was conservative, following traditions which went back to the epigraphic models of period I.[79]

The general picture presented by table 26 is one of a variety of contemporary epigraphic alternatives, some existing throughout all five periods, some for only a part of the time. As the totals given in tables 26 and 27 indicate, the number of variants remained fairly stable in periods I and II, rose sharply in period III + IV (when twenty-two graphs in our sample had two or more variant forms, compared to only ten in period I), and declined still more sharply in period V (when only five graphs had two or more variants).[80] This suggests that the epigraphic tradition only became standardized in period V after a period of epigraphic experiment—as fresh engravers were replacing the old?—in period III + IV.[81] Twenty graphs had one form only in period III + IV; that number had risen to thirty-four by period V. By the end of the historical period, the epigraphic options were

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early forms of *ma* (table 26, no. 27) were more pictorial than the contemporary graphs for the other domestic animals; this suggests to him the possibility that the Shang had the horse rather later than they had the cow, sheep, pig, and dog; similarly, the fact that the graphs for tiger (no. 24) and deer (nos. 25, 26) were less simplified than those of these four domestic animals suggests that the Shang were relatively unfamiliar with these wild animals. But other speculations are possible; for example, certain animal graphs might have been more detailed for religious reasons.

[76] Tung (1965), pp. 99–100, noted that late forms differed from early ones (e.g., table 26, no. 13), that elements or strokes were added or changed (e.g., nos. 15, 17, 18, 19), and that picture graphs became radical + phonetic compounds (as instances of this he cites *chi* 雞, which I cannot document, and *feng* [no. 16]). But while the evolution of individual graphs may be described in these terms, no uniform trend is discernible (cf. n. 74). Tung's claim (1965), p. 100 (cf. [1933], p. 415; [1945], pt. 2, ch. 3, p. 2b) that the graphs for *hsi* 夕, "night," and *yüeh* 月, "moon" or "month," changed places in different periods is not correct (see the entries at S161.4–162.1). Graph forms (a) and (b) were both used to mean "night" (i.e., the time when the moon was visible) in all five periods, though form *a* was apparently becoming more prevalent by period V.

[77] E.g., table 26, nos. 1c; 5b; 6b; 9a; 12b; 14.1b; 17b; 18b; 19b; 22b; 25b; 27b; 31b; 32b; 34d; 35b; 36b; 39b; 41c; 42c.

[78] E.g., table 26, nos. 3c; 10a; 13b; 15a; 16a.

[79] E.g., table 26, nos. 10a; 15a; 16a.

[80] The trends described are misleading to the extent that they exclude the RFG inscriptions whose period is still in dispute (see ch. 2, n. 18). The trends would be accentuated if the RFG inscriptions are placed in period IVb. If, on the other hand, they are contemporary with the period I inscriptions, we would have a situation in which there were approximately the same number of epigraphic variants in periods I and III + IV, with a temporary reduction in the number of variants in period II (see table 27).

[81] Cf. Kaizuka and Itō (1953), pp. 66–67, who note that the greatest change in the epigraphy of the *kan-chih* graphs took place in period IV; thus, we may generally divide the *kan-chih* forms into two groups: pre-IV and post-IV. On the way in which this shift may be used to date Shang bronze inscriptions, see Kane (1973), pp. 340–342.

much reduced, a fact which may reflect, as we have noted (sec. 2.9.3), a decline in the number of engravers.

It must be stressed that epigraphic evidence (like calligraphic) can never be conclusive by itself. The presence of graph forms like numbers 1c or 7e in table 26 may suggest a period V dating for the inscription (and in these particular cases would suggest it strongly), but—like all secondary criteria—it can never prescribe an inscription's period with certainty. There is always the possibility that a period V form was anticipated by some avantgarde engraver in III + IV, or that a form that is thought to have died out after periods I and II continued to be used in III + IV as an archaistic survival, perhaps by inadvertence, perhaps by an aged engraver set in his ways. For there is no evident reason why we should be able to pigeonhole calligraphic or epigraphic change according to five, basically political, periods. Such changes imply a change in the training and habits of scribes as new scribes were introduced to replace, or work with, the old. Rather than the establishment of new epigraphic orthodoxies at the start of a new period or periods, table 26 indicates the persistence of various epigraphic fashions, some of whose practitioners spilled over from one period to the next, with the result that new and old styles coexisted. Many of the epigraphic choices which eventually triumphed in period V, for example, were already in use in III + IV or earlier.[82]

Graphic form, in short, like the diviner's name and like calligraphic style, may provide us with the probable floruit of a particular inscription without excluding the possibility of a variant dating. The dating of an inscription to a certain period solely on the basis of writing style depends on negative proof: we assign the date because no inscription with similar calligraphy or epigraphy has yet been positively identified outside the period assigned; but the possibility that our inscription does belong outside has not been definitely excluded. It goes without saying that further research and the excavation of new inscriptions may require us to revise table 26 in whole or in part.

4.3.1.5 *Inscription Placement*

Since it reflected the divination custom of the period (being closely related to the placement of the hollows [sec. 4.3.2.4]), as well as the decisions of the particular engraver, inscription placement may serve as one further indication of relative date.[83] No detailed study of the way the placement of the inscriptions on bone or shell evolved with time has yet been made; this is partly because the whole scapulas or plastrons upon which such a study would have to depend have not been found or reconstructed in significant quantities for any period but period I. The following remarks indicate only some of the more obvious criteria.

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[82] On reasons for the presumed gradualness of changes in writing style, see n. 46.

[83] Once again, it is important to distinguish between diviners and engravers. Chang Ping-ch'üan (*Ping-pien* 612, *k'ao-shih*, p. 95) has suggested that inscriptions which ran downward, with the columns all moving left, with no attempt at symmetry of graph placement, and with no attention paid to the central axis of the plastron are characteristic of the RFG diviner Tzu 子. But in this case, as in that of *Yi-pien* 4507 (RFG), the cracks made by the diviner face each other, displaying the standard mirror symmetry. The fact that the inscriptions violate this symmetry should presumably be linked to an engraver, serving the RFG diviners as a whole—probably the engraver responsible for the similar pattern on *Ping-pien* 611 (RFG)—and not necessarily with a single diviner.

Inscriptions associated with the court diviners of period I and the diviners of the Royal Family group (sec. 2.2.1.1) were frequently engraved on the back, as well as the front, of scapulas and plastrons.[84] This was not common in periods II to V, when inscriptions were generally recorded only on the front.[85]

As already suggested (sec. 4.3.1.3), the page design of the inscriptions became increasingly ordered and regular with the passage of time. The order which was introduced into the sacrificial schedule in period IIb with the advent of the New School under King Tsu Chia was also reflected in the more systematic placement of the inscriptions on bone and shell.[86] Similarly, the scrambled mix of topics generally found on the period I bones and shells—well exemplified by the mixture of divinations about military campaigns, sacrifice, and toothache found on *Ping-pien* 12–21 (sec. 3.7)—became less common in period II, when divinations about just one topic, such as the hunt or the sacrificial cycle, might be clustered on a particular bone or shell over a series of days. Such pure clusters had become the norm by period V (as in fig. 10).[87]

Boundary lines (sec. 2.11), common in periods I and II, had virtually ceased to be used in period V;[88] their disappearance may presumably be related to the increasing order of the inscriptions which rendered the use of boundaries unnecessary.

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[84] See the inscriptions cited by Hsü Chin-hsiung (1973a), pp. 22, 110–111. See too ch. 2, n. 65.

[85] In *Jimbun*, the following percentages of fragments in each period have inscriptions on their back: 13 percent (period I); 1 percent (period II); 1 percent (period III); 0 percent (period III + IV, period V); 0.7 percent (RFG). I am grateful to David Keegan for making these counts and those in n. 88.

[86] On the orderly placement of inscriptions on scapulas in periods IIb and V, see Tung (1945), pt. 1, ch. 3, p. 11a; pt. 2, ch. 6, pp. 5b–8a. Cf. ch. 2, n. 123. See too Yen Yi-p'ing (1951), p. 212; (1961), p. 539, who dates *Chia-t'u* 209 to period IIa on the basis of the irregular position of its ten-day divination inscriptions. For the situation in period III, see table 23.

[87] Hu Hou-hsüan (1939), pp. 432–439, gives cases, mainly from period I, of divination topics inserted between, or straddled by, others of a different nature. The custom of using a scapula or plastron for divining exclusively about the ten-day week was already present in period I and continued into later periods (see the inscriptions listed at S165.1–166.3); cf. ch. 2, n. 19. For period II oracle bones used exclusively for sacrifice divinations, see *Chui-hsin 304* (fig. 7; translated in appendix 5, sec. 2); *Ho-pien 22* (D) (S91.3); *30* (D) (S127.3); *Hsü-ts'un 1.1513* (S250.2); *Ts'ui-pien 176* (fig. 18). For period V oracle bones, see appendix 5, n. 7.

[88] In *Jimbun*, the following percentages of fragments in each period have boundary lines carved on them: 4 percent (period I); 6 percent (period II); 3 percent (period III); 0.4 percent (period III + IV); 2.3 percent (period IV); 0 percent (period V); 2.6 percent (RFG). If, however, following Chang Tsung-tung (see n. 44), we place the period IV inscriptions in period II, a more consistent curve is obtained: 4.2 percent (period I); 4.5 percent (period II); 3 percent (period III); 0.4 percent (period III + IV); 0 percent (period V). In *Chia-pien*, the situation is as follows: 6 percent (period I); 10.5 percent (period II); 0.8 percent (period III); 2.5 percent (period IV); 0 percent (period V). The figures are not fully comparable since Ch'ü Wan-li does not separate the RFG inscriptions but places them in period I (on this problem, see ch. 2, n. 18).

4.3.1.6 *Marginal Notations*

The marginal notations carved on scapula sockets, plastron bridges, and elsewhere (sec. 1.4), which record provenance, number of pieces received, date, and the persons responsible for the ritual preparation and for making the record, are, with some exceptions, not found on bone or shell after period I.[89] They were never recorded in period V. Whether their disappearance indicates a change in the system of tribute and ritual preparation or a change in the record-keeping method, or both, is not certain.[90]

4.3.1.7 *Preface and Postface*

Certain variations in the formulas which preceded or followed the divination charge (sec. 2.2) may serve as secondary dating criteria. Table 7 lists the variety of prefaces and postfaces used, most of which were abbreviations of, or variations on, a few standard formulas. The basic formula (table 7, no. 1.1), "Crack-making on chia-tzu, X (the diviner) divined," appears in all periods.[91]

Certain characteristic patterns are useful for periodization.[92] A few diviners appear to have had predilections for certain formulas;[93] some formulas appear to have been restricted to the inscriptions of the Royal Family group.[94] Other formulas occur in more than one period but tend to appear chiefly in one period.[95] Divination prefaces in periods IV and V rarely record the diviner's name, a trend that may have been related to the

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[89] Hu Hou-hsüan (1944), p. 67a; Tung (1954), p. 467. Examples appear in period III (Ch'en Meng-chia [1956], p. 13, citing *Chia-pien 2181, 3913.16, 3918.22*; in these cases, the record had been abbreviated to the name of the recorder alone and was placed on the right xiphiplastron) and perhaps in period IV (Ch'en, loc. cit., citing the unusual inscriptions at S363.4, whose date and meaning are not certain; see too, *Jimbun shakubun*, pp. 355–356). For RFG marginal notations, see Ch'en, op. cit., p. 155.

[90] The significance of these changes will be discussed in *Studies*. For a preliminary assessment, see Keightley (1973a), pp. 46–49; (1975c), pp. 49–52.

[91] Some abbreviations of this formula (table 7, nos. 1.3; 2.3) also appear in all periods; others appear in periods I to III (no. 2.1.1) or I to IV (no. 3.3). The single-worded preface, **tieng*, "divined" (no. 3.3.1), appears in all periods save that of the RFG. The ultimate abbreviation—charges recorded with no preface whatever (no. 4.3)—may be found in every period. No. 1.2.2, the royal equivalent of the basic formula, appears in periods I through IV, being replaced in V by no. 1.2.

[92] E.g., formulas which included the word *yüeh* 曰, "saying," were limited to periods I and II (on the meaning of *yüeh* in such cases, see ch. 2, n. 21). In this case the basic formula, common in period I, appears to have been no. 1.4: "Crack-making on chia-tzu, X (the diviner) divined, saying." The many variants or abbreviations all appear in inscriptions of period I or the RFG (table 7, nos. 1.4.2; 1.4.3; 1.4.4; 1.4.5; 2.4; 2.4.1; 2.4.3; 3.4.1; 3.4.2; 3.4.3; 3.4.4; 4.2).

[93] E.g., table 7, no. 2.5.2, appears to have been a favorite preface of the period IIb diviner Hsing 行. The RFG diviners and Shao 勺 rarely used the graph **tieng*; Jao (1959), p. 658, notes that only 7 out of 110 inscriptions contain the **tieng* and (ibid., p. 687) that only 4 of the Shao inscriptions (out of some 30 inscriptions; I take this count from S575) do so. This omission was not characteristic of other RFG diviners such as Tui 𠂤 and Hsieh 叶.

[94] Table 7, nos. 1.1.1; 1.1.2; 1.2; 2.1; 2.4.1.

[95] E.g., table 7, no. 1.2, appears mostly in period V; no. 1.4 appears mostly in I; no. 2.3 was common in III + IV.

decreasing importance of the court diviners and the increasing control of divination by the king.[96]

As the percentage figures at the end of table 7 indicate, the great variety of formulas used in periods I to II was reduced by almost half in periods III to V, when many of the earlier formulas had fallen into disuse.[97] This indicates that by the later periods Shang divination practice was becoming more standardized, a conclusion that accords with the findings derived from the study of calligraphic and epigraphic evolution (secs. 4.3.1.3 and 4.3.1.4). It is interesting to note, however, that whereas period III+IV saw a peak in the number of epigraphic variants, the peak number of prefatory formulas was reached in period II. This suggests that divination models were standardized earlier than epigraphic ones.

The way in which the month or ritual-cycle date was recorded in the preface or postface may also indicate the relative date of inscriptions. In the case of the months, the issues are technical, and full agreement has not yet been reached on which formulas belong to which periods.[98] Spill-over probably occurred, for, as with our other criteria, the variations presumably reflect the usage of different diviners or engravers who were contemporaries for a while.

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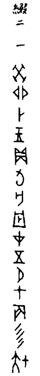
96. See n. 90.

97. E.g., table 7, nos. 1.4.–1.4.6; 2.4.–2.5.1; 3.4.–4.2.

98. (1) The phrase *chin yüeh*, "this month," or *chin chi yüeh* 今幾月, "this nth month," was used only in the prefaces or postfaces of period I or the RFG; see the inscriptions at S260.2–261.1. (2) The presence or absence of a Ψ (*tsai* 在) in the month date may also assist periodization. Formula *a*, *chi yüeh* 幾月, "the nth month," in which the month number was given without the preposition "in" or "at," was standard in period I and in RFG inscriptions and still predominant in periods II and III + IV; it had been eliminated by period V. Formula *b*, *tsai chi yüeh* 在幾月, "in the nth month," was rare in period I, common in II, less common in III + IV, and had become the sole and standard formula by period V (cf. Ch'en Meng-chia [1956], p. 236; Tung [1965], p. 96). My conclusions are based upon a study of the "in the (next) ten days there will be no disaster" inscriptions given at S165.1–168.2. Shima's listing, which is incomplete, indicates that 100 percent of the month dates used formula *a* in period I; that 74 percent used formula *a* and 36 percent used formula *b* in period II; that 81 percent used *a* and 19 percent used *b* in III + IV; and that 100 percent used *b* in period V. These figures are not fully accurate. For example, at least four cases of formula *b* appear in period I or in RFG inscriptions (*Ch'ien-pien* 7.43.2 [S508.4]; *Chin-chang 696* [D] [S319.2]; *Jimbun* 3016 [S337.4]; *Yi-pien* 15 [S467.2]) so that formula *a* was not the only formula in use at that time. Nevertheless, the general trend from *a* to *b*, a trend which served to lengthen and complicate the inscription, is undoubtedly real. The presence of formula *a* renders a period V date virtually impossible; and the presence of formula *b* renders a period I date unlikely. (3) The way in which the first month of the calendar year was named varied with the period. The term *yi-yüeh* 一月, "the first month," was used in all periods; the term *cheng-yüeh* 正月, which also referred to "the first month" but presumably had the sense of "the regulating or rectifying month" that brought the start of the year into harmony with the seasons, was used only in periods II and V, and possibly in III + IV; it was especially favored by the engraver who carved the inscriptions of the period IIb diviner Hsing (cf. Ch'en Meng-chia [1956], p. 236). For a list of the occurrences of these terms, see *CKWP* (1934), "Ho-wen," pp. 10b–11a; *CKWP* (1965), "Ho-wen," pp. 27a–b; *Hsü chia-ku wen-pien*, "Fu-lu," ch. 1, p. 25. For examples by period: *Yi-yüeh*: period I: *Chia-pien 2111; Ping-pien 485.14; 515.1–2;* period II: *T'ieh-yün 55.1; 79.4;* period IIb: *Chien-shou 29.5; Hou-pien 1.19.3;* period III–IV: *Jimbun* 1737; 1767; period V: *Hou-pien* 1.10.16; 2.15.1; RFG: *Ch'ien-pien 6.26.1; Jimbun 3242. Cheng-yüeh:* period IIb: *K'u-fang 1076* (D); *Ts'ui-pien 176; 1352; Yi-ts'un 401;* period III + IV: *Wen-lu* 174; 232; 723; period V: *Jimbun* 2758; 2766. The inscriptions dated to period III + IV might be better assigned to period II (see n. 44);

The recording of the ritual cycle itself, however, is a firmer dating criterion and probably reflects evolving conceptions of religion and chronology. Inscriptions of the form

(PREFACE:) Crack-making on kuei-mao (day 40), the king divined:
(CHARGE:) "In the (next) ten days there will be no disaster."
(POSTFACE:)[99] In the fifth month, on chia-ch'en (day 41), we performed *yung* 彡 ritual to Ta Chia (⑨)[100]



have so far been found only in period IIb, where they are infrequent, and in period V.[101] The five major rituals which formed the framework of the Shang sacrificial system in periods IIb and V were used to date events in this way.[102]

In period V, two or more ritual events might be recorded for one charge, providing, as it were, a firmer temporal cross-fix. For example:

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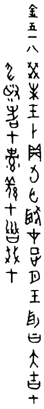
cf. Ch'en Meng-chia (1956), p. 236, who claims that month names of any sort were rarely recorded in IIIb to IVb. (4) The intercalary month placed at the year end—*shih-san yüeh* 十三月, "the thirteenth month," and *shih-ssu yüeh* 十四月, "the fourteenth month"—has been found only in inscriptions from periods I to III. For a list of such intercalations, see Shima (1958), p. 512; (1966), p. 21, n. 2; *CKWP* (1934), "Ho-wen," p. 16a; *CKWP* (1965), "Ho-wen," p. 28b; *Hsü-chia-ku wen-pien*, "Fu-lu," ch. 1, p. 27; *Jimbun sakuin*, p. 34. Shima (1966), p. 21, n. 2, lists the occurrences of *shih-san yüeh* by period. He believes that the thirteenth month was also intercalated in periods IVa and IVb, but none of the three cases which he cites (*Ch'ien-pien* 8.11.3; *Ning-hu* 1.430 [D]; *Yi-chu* 460) may be dated to IV with certainty (cf. Shima [1958], p. 510, where he had cited five cases). (5) The written formula for recording the teen-numbered months also varied by period. Formula *a*, ⺝, ⺝, etc., usually transcribed in commentaries as 十一月 or 十月一, etc., appears in periods I to III (with one exception in V). Formula *b*, 丨 ☽ ⺕ 一, 丨 ☽ ⺕ 二, etc., i.e., 十月又一, 十月又二, etc., appears only in periods III and V (cf. Ch'en Meng-chia [1956], p. 236). For examples by period (based on the inscription sample: *CKWP* [1965], "Ho-wen," p. 28b; *Jimbun sakuin*, p. 34; S165.1–168.2): Formula *a*: period I: *Chia-pien 2122; Ping-pien 249.4;* period II: *Jimbun 1263; 1319; 1357; 1470;* period III: *Jimbun* 1719; 1761; *1771;* period V: *Yin-hsü* 789 (D) (a unique case); RFG: *Jimbun* 3016; 3055; 3118; 3172. Formula *b*: period III: *Chia-pien 2491; 2622; 2647;* period V: *Yi-chu* 217; *Yi-ts'un* 428. (6) According to Ch'en Meng-chia (1956), p. 236, the month number was rarely recorded in periods IIIb or IV; he cites only one exception (*Yeh-san* 39.5). This rule is true only if one accepts Ch'en's view that the disputed RFG inscriptions should be dated to period I (or Ib) rather than IVb (see ch. 2, n. 18). Shima (1966), p. 4, by contrast, refers to over 450 cases of numbered months in period IV. Unfortunately, he cites no inscriptions; but I assume that Ch'en would have dated these cases to period Ib. If one accepts Ch'en's view, there is a strong presumption that inscriptions which record the month number are likely to come from either periods I, II, IIIa, or V.

[99] I cannot determine whether these sentences were primarily postfaces which specified the date, i.e., "it was that particular fifth month in which we performed (or were going to perform [Tung (1965), p. 96]) *yung* ritual to Ta Chia on chia-ch'en" or whether these sentences also served as verifications to demonstrate that the *yung* ritual having been performed without "disaster (fault? error?)," the next week had started auspiciously (cf. Keightley [1973a], p. 34). To the Shang, the two functions of dating the divination and verifying its prognostication may have been commingled; even those postfaces which provide a purely secular date, e.g., "(it was) in the eleventh month when the king attacked the Jen-fang—at Po" (*Chin-chang* 584 [D] [S71.2]; period V), may have implied that the successful campaign had validated the auspicious prognostication for that ten-day week.

[100] *Ho-pien* 21 (D) (S493.2); period IIb.

[101] Period II: e.g., *Hou-pien 2.20.7* (S127.4); *Yi-ts'un* 318 (S91.3); *906* (S250.2). Period V: e.g., the numerous divinations at S92.1–2; 128.2; 250.4–251.1; 398.4–399.1; 494.3.

[102] The five rituals were 彡 (*yung* 肜; S492.3 ff.), 𦏲 (*yi* 翌; S250.2 ff.), 𥘅 (*chi* 祭; S91.3 ff.), 壴 (*tsai* 𩱦; S398.3 ff.), and 㔾 (*hsieh* 劦; S127.2 ff.). For an introduction to the ritual system, associated with the New School diviners, see Tung (1945), pt. 1, ch. 1, pp. 3a–3b; (1965), pp. 109–113; Ch'en Meng-chia (1956), pp. 385–392. Note that Shima (1958) argues that the cycle started with the *chi* ritual; Hsü Chin-hsiung (1968) argues that it started with the *yi* ritual.



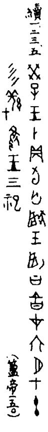
(PREFACE:)	On kuei-wei (day 20), the king making cracks, divined:
(CHARGE:)	"In the (next) ten days there will be no disaster."
(POSTFACE:)	In the first month.
(PROGNOSTICATION:)	The king, reading the cracks, said: "Greatly auspicious."
(POSTFACE:)[103]	On chia-shen (day 21) we performed *chi* ritual to Hsiang Chia (K17 ㉓), *tsai* ritual to Ch'iang Chia (K14 ⑳), *hsieh* ritual to Ch'ien Chia (K11 ⑰).[104]

Still more precise dating was provided when the postface recorded the sequential number of the royal ritual cycle. For example:

(PREFACE:)	On kuei-ssu (day 30), the king making cracks, divined:
(CHARGE:)	"In the (next) ten days there will be no disaster."
(PROGNOSTICATION:)	The king, reading the cracks, said: "Auspicious."
(POSTFACE:)[105]	In the sixth month, on chia-wu (day 31), we performed *yung* ritual to Ch'iang Chia (K14); it was the king's third ritual cycle.[106]

Inscriptions containing the phrase, *wei wang chi ssu* 隹王幾祀, "It was the king's nth ritual cycle," have been found only in period V.[107]

Finally, it may be noted that the place of divination was rarely recorded in period I; prefaces (or postfaces) which record this information are generally, though not exclusively, from period V.[108] A period or range of periods for inscriptions which record a particular divination site may frequently be established by consulting *Sōrui* (sec. 3.3.2) and the commentaries for the date of other divinations made at the same site.[109]



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[103] Cf. n. 99.

[104] *Chin-chang* [D] *518* (S532.3); period V.

[105] Cf. n. 99.

[106] *Hsü-pien 1.23.5* (S244.1); period V.

[107] Ch'en Meng-chia (1956), pp. 233–235. In period IIb the ritual cycle, which was only 300 days long, could not yet serve as a solar calendar (Shima [1958], p. 515). It is thought that by period V the length of the cycle had expanded (with the natural increase in the number of ancestors to be worshipped as the generations accumulated) to fill 360 to 370 days, approximately the length of the solar year. The ritual cycle, therefore, may have served as a calendar, and the number of the cycle may have served to identify the reign year. The sacrificial cycle had become so regular by period V that it is possible for scholars to infer the number of the sacrificial cycle of an inscription simply from the *kan-chih* date and month number when a particular sacrifice was performed and thus to assign a "year" to the inscription, even though that information is not recorded. For examples of such reconstructions, which do not always agree, see Tung (1945), pt. 2, ch. 2; Shima (1966) (cf. my comments to appear in *RBS* 12); Hsü Chin-hsiung (1968) and (1970). The considerable problems involved will be discussed in *Studies*.

[108] E.g., table 7, nos. 1.5.1; 1.5.2.

[109] E.g., the phrase *tsai tui-mou pu* 在𠂤某卜, "crack-making at Tui-X," appears only in RFG inscriptions and those of period II (RFG: *Yi-pien 1834; Ch'ien-pien 8.6.3; Hsü-ts'un 2.586* [D] [all S441.3]; period II: the other inscriptions at S441.2–3). By contrast, the formula *pu tsai mou shih* 卜在某師, "crack-making at X-Shih," appears mainly, if not exclusively, in period V (S442.4–443.2; possible exceptions are *Jimbun* 2141; *Ning-hu* 1.331 [D]; *Yeh-san* 43.2). Divinations at , at , and at , were recorded only in period V (S417.2; 431.2–432.1; 478.4–479.2). But divinations at were recorded in both periods II and V (S472.4; period II: *Nan-pei*, "Ming" *395* [D]; period V: *Ch'ien-pien 2.8.7*). An index to important occurrences of the phrase *tsai mou* 在某, "at X-place," may be found at S498; S505.3–4 lists *tsai mou pu* 在某卜 inscriptions, but is not complete.

4.3.1.8 *Prognostications*

In period I, prognostications might be auspicious or inauspicious; they might be remarkably specific, and, in the case of the ten-day week divinations, they were invariably inauspicious.[110] By period V, the situation had changed radically. First, period V prognostications, when recorded, were always auspicious. This routine optimism, particularly notable in the case of the ten-day week and hunt divinations, is a useful criterion for dating.[111] Second, the period V prognostications tended to be clustered; all divinations on certain oracle bones, divined at ten-day intervals, were always recorded with identical, auspicious prognostications or lacked them altogether.[112] The systematic and apparently artificial nature of the prognostication record, although present in certain period I inscriptions, had become far commoner by period V.[113] Third, by contrast with the elaborate prognostications of period I,[114] those of period V were invariably as brief and nonspecific as crack notations, whose function they may in part have assumed (sec. 4.3.1.11). Period V prognostications consisted only of *chi* 吉, *ta-chi* 大吉, or *hung-chi* 弘吉. Further, in some cases, the *wang chan yüeh* preface (sec. 2.7) was omitted, leaving only the *chi*.[115] Fourth, instead of being recorded on the back of the bone or shell, as they frequently were in period I, the period V prognostications were invariably recorded on the front, on the same side

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[110] For auspicious or inauspicious prognostications, see the inscriptions listed at S307.1–2; for specific prognostications, see secs. 2.7, 2.8; for the invariably inauspicious, ten-day prognostications, see the inscriptions listed at S307.2–308.1; see too the discussion of display inscriptions at ch. 2, n. 90.

[111] See the inscriptions listed at S166.4–168.2; 293.4–297.1. The existence of this change has long been recognized (e.g., Britton [1940], p. 9; Crump and Crump [1963], pp. 172–173).

[112] E.g., *Yi-chu 244* (seven charges, seven (?) identical prognostications); *Yi-chu 243* (six charges, six identical prognostications); *Ch'ien-pien 4.6.5* + *5.16.2*, *Chin-chang* 334 (D), and *Hou-pien 1.19.4* (all with four charges and four identical prognostications); *Hsü-ts'un 1.2689* (three charges, three identical prognostications). These cases may be contrasted with *Hsü-ts'un 2.964* (D) (seven charges); Ch'en Meng-chia (1956), plate *21.3* and *Chui-ho 65* (both with six charges); *Hsü-ts'un 2.971* (D) and *Yi-chu 245* (both five charges); *Hsü-pien 3.29.3*, *Hsü-ts'un 2.966* (D) and *Yi-chu 217* (all with four charges)—none of these record a single prognostication. These inscriptions are all transcribed at S167.2–168.1. A count of all period V inscriptions from S166.4–168.2 indicates that of the fifty-nine ten-day divination fragments which contain two or more charges, 41 percent had no prognostications at all, 41 percent had charges which were all linked to auspicious prognostications; only 18 percent were nonhomogeneous, i.e., contained charges, some of which had prognostications, some of which did not.

[113] The lack of auspicious prognostications in most period I display inscriptions (e.g., S307.3–308.1) and the lack of inauspicious prognostications in period V indicate the divination process or divination record was being manipulated. The difference in frequency between the period I and period V prognostications is confirmed by the fact that while only 8 percent of the 1,250 period I *Jimbun* fragments contain two prognostications on the same fragment, 54 percent of the 413 period V *Jimbun* fragments contain two or more prognostications. That the disparity is not due to the smaller size of period V calligraphy, which would make it possible for more period V than period I inscriptions to fit on a fragment of the same size, is clear from the fact that only fifteen (7.5 percent) of the first 200 *Ping-pien* plastrons (which are large "fragments" indeed) have two or more prognostications on them.

[114] See ch. 2, n. 68 and the prognostications translated in secs. 2.7 and 2.8.

[115] E.g., *Ch'ien-pien 2.35.6* (S296.2); *Hou-pien 1.15.5* (S296.1).

as the charge.[116] Fifth, the change in character of the prognostications was also accompanied by a change in the graphic form of *chan*, "to read the cracks."[117]

The situation in periods II to IV requires more study, but it seems generally true that the prognosticatory formula, *wang chan yüeh*, was recorded only in inscriptions from periods I and V (and, rarely, in inscriptions of the Royal Family group).[118] The distinctions given above, especially when the characteristic calligraphy of periods I and V is taken into account (sec. 4.3.1.3), make it relatively easy to date any inscription containing a prognostication.

4.3.1.9 *Verifications*

Similar considerations apply to the use of verifications (sec. 2.8) as a dating criterion, though the infrequency with which they were recorded renders their presence or absence of limited usefulness. Since they generally appeared with prognostications, verifications shared a similar evolution.[119] Thus, they are almost never found on the back of bones or shells after period I.[120] And while certain period I inscriptions might record remarkably detailed verifications,[121] later verifications are far terser—"Today it really did rain," "This night it really did not rain," or "We caught thirteen foxes"[122]—and are generally limited to weather and hunt records. Verifications are recorded most frequently in periods I and V, occasionally in period II, and rarely, if ever, in other periods.[123]

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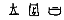
[116] Of the seventy-six period I prognostications on *Ping-pien* 1–200, sixty-six (87 percent) are on the back of the shell and are separated from the charge on the front. In *Jimbun*, twenty-one (52 percent) out of the forty period I prognostications are on the back of the bone or shell. Cf. ch. 2, n. 65. In period V, by contrast, all the prognostications listed at S311.2–311.3 are recorded on the same side of the oracle bone as the charge.

[117] Table 26, no. 7e. The  of period I became the 王 of period V (S307.3; 311.2). Commentators generally take as semantically equivalent to or its variants, , , etc. (*CKWT*, pp. 1099–1102).

[118] RFG prognostications frequently omit the graph *chan*, e.g., "Hsieh said: 'Auspicious'" (*Ch'ien-pien 6.39.1* [S311.1]); see the other examples at ch. 2, n. 69.

[119] *Ping-pien 197.3* appears to be a period I verification without a prognostication, but, as in most cases of this sort, the prognostication may have been recorded on one of the other four plastrons in the set (cf. the prognostications that appear on only two of the five plastrons forming the set discussed in sec. 3.7). Similar considerations may apply to various period V hunt divinations which record a verification without any prognostication; e.g., *Ch'ien-pien 2.29.3* (S295.1); *2.43.3* (S294.1); *Chin-chang 580* (D) (S295.3).

[120] The only exception I have noted is *Jimbun* 1373 (period II).

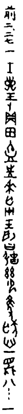
[121] E.g., *Ping-pien 1.3*; *Ching-hua 2* (fig. 14); translated in sec. 2.8.

[122] *Jimbun* 1373 (S488.3); 1377 (S488.4) (both period II); *Ch'ien-pien 2.27.5* (S220.3; period V).

[123] Verifications containing the graph (*yün* 允), "really, truly," were mainly recorded in period I (see the inscriptions listed at S488.2–491.4). RFG cases include *Yi-pien* 9067; *Ching-chin* 2910; *Jimbun* 3085 (all S489.1); *Jimbun* 3091 (S489.2); *Ch'ien-pien* 7.8.4; Nan-pei, "Nan" 1.60 (D) (both S489.4). Period II cases include *Jimbun* 1373; 1374 (both S488.3); 1377 (S488.4); *Hou-pien* 2.41.12 (S489.4); 1.32.5 (S491.4); *Hsü-ts'un* 1.1719 (S491.4); the dating is not always certain and some of the fragmentary inscriptions may be charges rather than verifications. Period III cases include *Jimbun* 1719 (S488.3); 1922 (S488.4). *Jimbun* 2373 (S488.4), 2521 (S489.2), and *Chia-pien* 620 (S489.4) have been dated to period IV, though this is not firmly established (see n. 44). Only one period V case, *Ch'ien-pien 5.25.5* (S489.1) is listed. For other period V hunt verifications, without *yün*, see S293.4–297.1. Any judgment

Attention must also be paid to the notations *tzu-yung* 茲用, "this (crack/divination charge [?]) was used (?)," or *tzu-yü* 茲 𢓊 (= 御 [?]). The exact meaning and function of these terms are not understood.[124] Since the majority of these notations, which, so far as we can tell, always appear in auspicious contexts, were not written beside the cracks, they cannot, strictly speaking, be classified as crack notations.[125] By period V, at least, the phrase *tzu-yü* served, in divinations about the weather or the hunt, as a link between the auspicious prognostication and the verification:

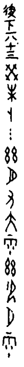
(PREFACE:) On jen-tzu (day 49) the king, making cracks, divined:
(CHARGE:) "Hunting at Chi, going and coming there will be no disaster."
(PROGNOSTICATION:) The king, reading the cracks, said: "Extremely auspicious." *Tzu-yü* ("this was used [?]," or "at this point we drove off in our chariots" [?]).[126]
(VERIFICATION:) We caught forty-one foxes, eight hornless deer, one. . . .[127]



On other occasions in period V, the prognostication was omitted and the *tzu-yü* stood alone:

(PREFACE:) Crack-making on kuei-wei (day 20) [divined]:
(CHARGE:) "This month there will be a great rain." *Tzu-yü* ("this was used [?]").[128]
(VERIFICATION:) In the night, it rained.[129]

Whatever the exact meaning or function of these terms, which we may refer to as "verification notations," their presence in an inscription provides a clue to its relative date. *Tzu-yung* was used in periods II to V, but has not been found in period I. *Tzu-yü* was used only in period V. [130]



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about the extent to which verifications were used, however, is complicated by various considerations: (1) The need to relate verification use to particular divination topics, (2) the need to study verifications not containing *yün* 允, (3) uncertainty about whether the postface recording a sacrifice date should be considered a verification (see n. 99)—if so, such verifications also appeared, rarely, in period II (n. 101)—(4) uncertainty about the functions of the notations *tzu-yung* and *tzu-yü* which may have served as verifications.

[124] The basic study is Hu Hou-hsüan (1939a), which must be supplemented by Hsü Chin-hsiung (1963), pp. 8a–11b. It is generally agreed that *tzu-yung* and *tzu-yü* were equivalent phrases (e.g., Hu, ibid., p. 481; Ikeda [1964], 2.18.13); but it is also clear that by period V they were functionally distinct: *tzu-yung*, never used when the king was recorded as diviner, was used in sacrifice divinations (S470.3–4); *tzu-yü* was used in divinations about hunting (S41.1–42.1) and campaigning (the inscriptions cited by Hsü, ibid., p. 9a). *Yung* was certainly used as a verb of sacrifice in the inscriptions (e.g., Hu, ibid., p. 471; Ch'en Meng-chia [1956], p. 327; *Chia-pien* 433, *k'ao-shih*, p. 67). It is possible, therefore, that *tzu-yung* originally meant "here (at this point in the divination process) we offered sacrifice," i.e., this was the charge, or this was the crack, that showed it was auspicious to proceed. Since *yü*, in Chou texts at least, meant "to drive a chariot," it is conceivable that in the hunt divinations of period V *tzu-yü* meant "here (at this point in the divination process) we drove off in our chariots" and as a result, as the verifications frequently note, caught so many animals (Hsü, ibid., p. 9b; cf. *Ogawa* 6, *shakubun*, p. 263, n. 5). It is hard to apply such a meaning, however, to *Hou-pien* 2.18.13, translated in this section.

[125] That they may have come to function as crack notations is suggested by the fact that their use appears to have increased as the use of crack notations declined (sec. 4.3.1.11).

[126] See n. 124.

[127] *Ch'ien-pien 2.27.1* (S220.3; period V).

[128] See n. 124.

[129] *Hou-pien 2.18.13* (S41.2; period V).

[130] These conclusions are based upon the inscription sample at S41.1–42.2; 470.3–4. The notations *tzu pu yung* 茲不用, *pu yung* 不用, or *tzu wu yung* 茲毋用 appear rarely, and, according to Hu Hou-hsüan (1939a), p. 484, only in periods II and IV.

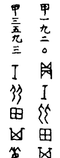
4.3.1.10 *Crack Numbers and Sets*

As we have seen (secs. 2.4, 2.5), crack numbers in period I might run from numbers 1 to 10. After period II, however, they never exceeded 5.[131] The presence of crack numbers higher than 5, therefore, is a sign of early date.

Further, the period I practice of dividing divination topics into pairs of complementary, balanced charges in the positive and negative mode (sec. 2.5) had virtually lapsed by period V,[132] so that period V sets consist of only five identical charges, usually couched in terms of what the Shang wanted to have happen—"there will be no disaster," "today it will not rain"—with the crack numbers running from 1 to 5 (as in fig. 10). Crack numbers and sets, in short, became standardized and simplified with the passage of time.

4.3.1.11 *Crack Notations*

In period I, the crack notations recorded on plastrons were, listed in order of frequency, *shang-chi* 上吉, "highly auspicious," *hsiao-chi* 小吉, "slightly auspicious,"[133] *pu*



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[131] Ch'iu (1972), p. 44, notes that crack numbers never exceed number 5 in periods III and IV. And this is clearly true of period V. I have not yet found any period II sets with crack numbers higher than 5.

[132] There is no easy way to document this evolution since pairs are only readily identifiable on the large, reconstituted, period I plastrons such as we have in *Ping-pien* and *Yi-pien*. We have no analogous material for later periods; more research is needed on periods II to IV, in particular. The presence of the negatives *fu* 弗, *pu* 不, *pi* 弜, *wu* 勿, and *wu* 毋 may be taken as indication of the existence of negative charges and thus, crudely, of the existence of positive-negative charge pairs. (*Wang* 亡 is excluded since it frequently appears in formulaic endings, such as *wang tsai*, "there will be no disaster," or in prognostications, but is seldom used as the negative in a complementary pair.) A count of these negatives in *Jimbun* reveals the following situation: 221 (13 percent) of the 1,730 period I inscriptions contain negatives; 50 (19 percent) of the 269 RFG inscriptions contain negatives; 43 (10 percent) of the 431 period II inscriptions contain negatives; 201 (23 percent) of the 888 period III+IV inscriptions contain negatives; 5 (0.7 percent) of the 384 period V inscriptions contain negatives (I am grateful to Inge Dietrich and Beth Upton for making these counts). The resurgence of negatives in period III+IV is misleading here since many of the inscriptions, especially those containing the negative *pi*—probably a substitution, used principally in period III+IV, for *wu* 勿 (Serruys [1974], p. 6; cf. Ch'en Meng-chia [1956], p. 128)—were merely single, negative charges, and not one of a positive-negative pair. This preference for the negative charge appears to have been characteristic of many period III+IV inscriptions (e.g., the inscriptions containing *pi* at S293.3; 380.2–383.4). And it should be noted that at least in the hunt inscriptions, the effect was to exclude certain alternatives rather than prohibit the main activity; e.g., "Divining: '(The king) should not hunt on the jen day, (for if he does,) it will perhaps rain'" (*Chia-pien* 1920 [S293.3]), or "(The king) should not hunt on the jen day, (for if he does,) there will perhaps be regret" (*Chia-pien* 3593.2 [S293.3]). By period V, in any event, complementary pairs were rarely used; I have found less than twenty cases (e.g., *Ch'ien-pien 2.96.6; 2.43.5; 2.44.1; Hou-pien 1.20.1; Yi-chu 116* [all S457.1]; *Ch'ien-pien 2.42.6; Yi-chu 115* [both S457.2]; *Ch'ien-pien 2.30.6; Hou-pien 1.30.8* [both S455.4]; *Ch'ien-pien 3.17.5* [S41.2]; *Ts'ui-pien 688* [partly at S41.2]; *Jimbun 2891*). In most of these cases the undesirable charge (that containing the particle *ch'i* [see ch. 3, n. 41]) was considerably abbreviated (cf. ch. 2, n. 130, above). For a preliminary assessment of the significance of this change, to be considered in *Studies*, see Keightley (1973a), pp. 37–38, 46–48, 57.

[133] *Yi-pien* 7767 (left hyoplastron) contains a unique *hsia-chi* 下吉, probably an engraver's error.

tsai ming 不再命 (?), "not again charge (?),"[134] and, least frequently, *chi* 吉, "auspicious."[135] In general, the first four of these appear as crack notations only in period I. Crack notations were generally not used in period II.[136] In period III+IV the crack notations *hung-chi* 弘吉, "extremely auspicious," and *ta-chi* 大吉, "greatly auspicious," first appear, apparently replacing the *shang-chi* of period I; *chi*, used rarely in period I, was now the most common notation. In period V, crack notations were rarely recorded.[137] Table 28 gives the occurrence of the various crack notations by period. For the epigraphic evolution of *chi*, see table 26, no. 14.2.

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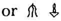
[134] The meaning of the crack notation or  has long puzzled commentators. My preliminary studies indicate that the notation tends to occur early in a set; for example, for the twenty-two occurrences of this notation found on *Ping-pien* 1–512, ten are recorded by crack 1, two by crack 2, and five by crack 3, so that seventeen (77 percent) of the twenty-two cases appear by the first three cracks. Since the phrase occurs in a context of other crack notations which were auspicious (e.g., *Ping-pien* 61.7–8; 155.3–4; 172.6–7; 195.1–2; 237.8; 261.1; 267.2; 345.2; 345.7; 353.1; 421.20; 491.3–4), we may assume it was either auspicious itself, or at least neutral. Since the phrase was not used after period I we are not likely to find analogues in Chou accounts of plastromancy. The best discussions are those of Jao (1957/58), pp. 16–20, and Huang P'ei-jung (1969). Huang finds that the notation is associated with the divination inscriptions of only eight diviners, but he reaches no conclusions about its meaning. Jao argues that should be read as *tsai* 冄, which is persuasive, in my view; and that should be read as *ming* 黽, a loan for *ming* 命, which is more speculative; and that the entire phrase *pu tsai ming* 不冄命 meant "not again charge" the bone or shell because the divination had been successful. The notation, in short, may have indicated that there was no need to divine with another sequence of numbered cracks. Cf. Hsü Chin-hsiung (1973a), pp. 48, 92, who reads it as *pu wu chu* 不牾鼄, "no obstacle."

[135] This ranking is based upon a count of the first 200 *Ping-pien* plastrons and plastron fragments, which contain 2,919 numbered cracks (based upon the information, not always exact, given in the commentaries) and 248 crack notations: 219 *shang-chi* notations, 17 *hsiao-chi*, 8 *pu tsai ming* (?), and 4 *chi*. The same order of frequency may be found on the period I *Jimbun* bone and shell fragments, except that *pu tsai ming* (?) was the most commonly used notation (see n. 137); this discrepancy may be explained in part by the fact that in *Jimbun* the notation appears twice as frequently on bone (48 instances [9 percent] on 545 fragments) as on shell (32 [4.5 percent] instances on 705 fragments); there are no bones in *Ping-pien*. But more research, which would associate particular notations with particular topics, diviners, or engravers is needed before the relative frequency of the crack notations and its significance are fully understood.

[136] Hsü Chin-hsiung (1974), pp. 175–177, notes the appearance of *shang-chi* on *Hsü-ts'un* 1.1603, 1.1670, and *Yi-chu* 393, whose diviners, Hsiung, Ta, and Ch'u, are usually dated to period II (cf. Hsü [1973a], pp. 5, 58); presumably, this is an instance of spill-over—either of period II diviners and engravers operating in period I or of period I practice continuing into period II (cf. n. 39). Hsü also argues that *Chia-pien* 2742 and *Wen-lu* 78, both containing a *shang-chi* crack notation, but both divined by Ho, normally regarded as a period III diviner, should, on the basis of hollow shapes (sec. 4.3.2.3), be dated to late period I.

[137] The basic study is Chang Ping-ch'üan (1952); in English, see Wu Shih-ch'ang (1955). My preliminary conclusions are based upon a count of the crack notations listed in *Jimbun sakuin*. In period I, I find the following notations: 80 *pu tsai ming*, 54 *shang-chi*, 20 *hsiao-chi*, 3 *chi*; on RFG fragments there is 1 *shang-chi* and 1 *hsiao-chi*; in period II, there are no crack notations; in period III+IV, I find 64 *chi*, 45 *ta-chi*, and 15 *hung-chi* crack notations; in period V there is one *hung-chi*. As with most periodic analyses of this sort, the dating of some of the inscriptions is in dispute (cf. n. 44; Hsü Chin-hsiung [1974], pp. 13, 49, 197–198, would date the RFG fragments *Jimbun* 3220 and 3228 to period I; cf. Hsü [1973a], pp. 4, 7, 57, 68). Ch'en Meng-chia (1956), p. 142, suggests that *chi* and *ta-chi* were especially common in period IIIb, but cites no cases; Wu Shih-ch'ang (1955), p. 48, argues, by contrast, that marginal notations were rare in III but frequent in IV. More discriminating criteria may eventually permit distinctions of this sort to be made with assurance.

4.3.1.12 *Topics and Idioms*

Rituals and sacrifices, ancestral curses, persons and statelets, military alliances, and numerous other topics, idioms, and graphs recorded in the divination charges frequently reveal a periodicity that enables us to assign a probable date to inscriptions in which they appear. These changes in usage are the stuff of Shang history; the oracle-bone record is alive with their presence.[138]

Broad changes can be discerned in the content of the inscriptions. By period V, emphasis was focused upon divinations about the sacrificial schedule, the ten-day period and the night, and the hunt. Other areas of life, such as dreams, sickness, enemy attacks, requests for harvest, and the issuing of orders were divined far less frequently than they had been in period I, if at all (see table 29). A full account of this evolution, which is so significant for our understanding of the development of late Shang religion, state, and bureaucracy, will require further research.[139] Specific changes in topics and idioms—changes which both exemplify, and need to be considered in the context of, this general evolution—are presented in appendix 5. They provide valuable clues for dating the inscriptions in which they appear.

The forms of Shang divination also changed markedly between periods I and V. The trend toward terser, less detailed, and always optimistic prognostications and verifications, the reduced use of crack-notations and complementary pairs of charges, the disappearance of marginal notations, the virtual disappearance of diviners' names, the smaller number of calligraphic variants and divination formulas, the reduced size of the script—these phenomena were related to both the standardization of Shang divination procedures and the general shrinkage in the scope of the topics divined.

4.3.2 *Physical Criteria*

Since preference for bone or shell, as well as the techniques for preparing and cracking them, changed with time, physical characteristics of a particular fragment may serve as clues about its relative date.

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[138] The historical significance of specific changes may be different. Changes in divination formula, calligraphy, and epigraphy presumably reflected changes in divining and engraving personnel. The disappearance of a particular topic from the divination charges may be (1) real (in which case a person or statelet, for example, ceased to exist), or (2) apparent. If apparent, several explanations are possible: that a person or statelet ceased to exist as far as the Shang state or king was concerned or—which is not necessarily the same thing—as far as the Shang diviners were concerned, or that the apparent disappearance may be due only to the accident of recovery; inscriptions recording that topic may yet be found.

[139] Research is needed, in particular, on the situation in periods III and IV. New School divinations about a systematic ritual schedule, which first appear in period IIb and reappear, fully developed, in period V, have not been found in significant quantities for the intervening periods. This fact, which may be due to accidents of discovery (see sec. 4.3.3.3), does not necessarily mean, however, that period IV saw a return to the Old School practices of period I. It merely means that the situation in III+IV differed from that in IIb and V. Cf. ch. 2, n. 18.

4.3.2.1 *Bone or Shell*

At present, the distinction between scapulimancy and plastromancy is useful mainly to distinguish Neolithic from Shang oracle bones; it is of little use for making the finer separations which concern a scholar working with the inscriptions. Bovid scapulas were the material used most commonly in Lung-shan and early Shang pyromancy, followed in frequency by the scapulas of pig and sheep; deer scapulas were used rarely, and turtle shells more rarely still. Unprepared turtle plastrons have been found in early Shang strata at Cheng-chou, but bovid scapulas maintained their virtual pyromantic monopoly down to the period covered by the main corpus of the inscriptions excavated in the An-yang region when turtle shells at last came to be used in approximately equal numbers.[140] As we have seen (sec. 1.2.3; see too appendix 2), the use of bone or shell in the historical period is not a sufficient criterion to periodize a particular fragment.

4.3.2.2 *Initial Preparation*

The initial preparation of scapulas evolved from the most primitive, Neolithic stage, in which the bone was used in its natural state; through a transitional stage (Neolithic and early Shang), in which the socket and spine might be cut away, frequently crudely, and the bone might be polished; to the more developed An-yang stage, the historical period, in which the spine was sawn away, the socket was sawn to leave the half-moon-shaped section and the right-angled cut (sec. 1.3.1), and the surface was both smoothed and polished.[141] It has been suggested, in fact, that roughly smoothed scapulas with no right-angled cut sawn in the socket never appear after period I.[142] Further research may permit relatively subtle distinctions in preparation technique—reflecting, presumably, the habits of the artisans involved—to be used as criteria for assigning different periods to the inscribed bones.[143] At present, no significant changes have been discerned in the way the initial preparation of inscribed turtle shells (sec. 1.3.2) varied with time.

4.3.2.3 *Hollow Shapes*

Neolithic diviners scorched some scapulas with no advance preparation, applying the heat source directly to the unworked, natural surface; this primitive, free-form scapulimancy continued to be practiced through at least the early Shang.[144] Other Neolithic and early Shang oracle bones, however, did have pyromantic hollows, which varied greatly in size and shape, bored into their surface, and the following trends have been discerned in the evolution of the shapes.[145] Lung-shan scapulimancers mainly used bored hollows that were round and shallow;[146] pre-An-yang Shang diviners used hollows that were both bored and chiseled, but with the chiseled hollow being short and small; diviners in the reign of Wu Ting and after mainly used chiseled hollows that were long and large.[147]

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[140] See ch. 1, n. 16 and nn. 23–25. For a general summary, see Itō (1962a), pp. 251–252; Liu Yüan-lin (1974), pp. 113–115.

[141] Liu Yüan-lin (1974), with convenient tables at pp. 110–112, 118, 119.

[142] Ibid., p. 123.

[143] E.g., Hsü Chin-hsiung (1974), pp. 209, 254–255, has proposed that variations in the shape of the ridge made on the outer edge (for the meaning of "outer," see ch. 1, n. 46) of scapula backs may be used to distinguish scapulas of period III from those of period IV.

[144] Itō (1962a), p. 257, fig. 25a; Liu Yüan-lin (1974), pp. 99–112.

Pyromantic bones and shells excavated from the Jen-min Park phase at Cheng-chou[148] (which is thought to stand chronologically just prior to period I of the An-yang phase)[149] contain the first examples of double-hollows, a technical advance whose routine use parallels the appearance of turtle shells as a divining medium.[150] Double hollows are found on virtually all the period I turtle shells and may be regarded as standard for later, inscribed shells. Double hollows also appear on period I scapulas, but generally not on scapulas of periods II to V.[151] The presence of double hollows on scapulas, therefore, suggests a period I date.[152]

It has long been thought that more subtle distinctions in hollow shape might be used to periodize the inscribed bones and shells with more discrimination, but it is only recently

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[145] Liu Yüan-lin (1974), p. 118, tabulates scapula hollow shapes by period, but the small size of his sample renders the general value of his conclusions uncertain.

[146] Itō (1962a), pp. 251, 257; Liu Yüan-lin (1974), pp. 99–112.

[147] Liu Yüan-lin (1974), pp. 104–112, 129. Early Shang is here used to refer to oracle bones found at Erh-li-kang 二里岡, Liu-li-ke 琉璃閣, Mien-ch'ih 澠池, Ch'u-ch'iu 褚邱, Ch'i-li-p'u 七里鋪, and Kao-huang-miao 高皇廟. Cf. the conclusions of Kaizuka and Itō who, working with the *Jimbun* collection, advance the thesis that the bored, round hollow preceded the development of the double hollow; they further argue that cases in which the diameter of the circular hollow is equal to or greater than the vertical length of the chiseled hollow, or cases in which the long, chiseled hollow is entirely enclosed within the circular one (e.g., the back of *Jimbun* 707; 3227; 3228; 3230; *Shih-to* 2.186) represent a developmental stage between the single, bored round hollows and the double-linked ones (*Jimbun shakubun*, introduction, pp. 117–122; cf. Itō [1962a], pp. 257–261; Hsü Chin-hsiung [1974], pp. 20–21). For evidence that hollow shapes continued to evolve in Western Chou and Warring States times, see Tung (1956), p. 272. The triple-linked hollows found on scapulas in the upper stratum at Ch'eng-tzu-yai (Li Chi [1934], pp. 86, 88, fig. 9.4–6), if they are indeed of Chou date, represent a continuation of pre-An-yang practice (see n. 163).

[148] An Chih-min (1954a), p. 34, fig. 3; *KKHP* (1958.3), p. 60, fig. 16.4, plate 7.6.

[149] Chang Kwang-chih (1968), p. 231.

[150] Itō (1962a), p. 260. On the nature and function of the double hollows, see sec. 1.5. Liu Yüan-lin (1974), pp. 113–114, provides an interesting account of six An-yang scapula fragments which, on the basis of their crude preparation, unusual hollow shapes, and writing style, he would date to a pre-period I stage of divination. The fragments (for photographs see his plate 12.1–6) are 3.2.139; 5.2.66; *Chia-pien* 2342; 2344; 2875; *Yi-pien* 9105 (this last being from Hou-kang 後岡). In some cases, the hollows (all single) were burned on both shoulders, resulting in ╋ -shaped cracks, but in other cases the heat source was placed so as to form a definite pattern of *pu* cracks, e.g., hollows on the left of the scapula were all burned on their right shoulder, and vice versa. Double hollows were presumably developed to facilitate the appearance of such crack patterns.

[151] Liu Yüan-lin (1974), p. 118. Liu (p. 117, plate 12.1) notes a rare period V bone fragment (*Chia-pien 3689*) with a double hollow. Cf. Hsü Chin-hsiung (1973a), pp. 17, 93–94.

[152] It is particularly important in this connection to emphasize a point stressed by Hsü Chin-hsiung (see ch. 1, n. 83): many of the round hollows on the shoulders of long hollows were not chiseled or drilled, but were merely the result of heat chipping; the distinction, which is crucial to his system of periodization, may not be visible in a rubbing.

that a comprehensive study of the problem, primarily as it applies to the scapulimantic hollows, has been undertaken by Hsü Chin-hsiung.[153] The topic—which has led Hsü to write several articles and two book-length monographs, the last superseding all the rest[154] —is technical and the conclusions still tentative. Table 30, which summarizes some of his preliminary results, indicates the type of conclusions to which his researches are leading him; but his work, which involves the measurement and classification of hundreds of hollow shapes, must be read in its entirety.[155] Hsü is continuing to develop the analytical vocabulary that this kind of study requires;[156] he is suggesting ways in which hollow shapes, considered with other criteria such as writing style, hollow placement, and preface formula, may permit us not only to separate period III inscriptions from those of period IV, but also to classify some bones as belonging to early, middle, or late period III or early, middle, or late period IV.[157] He is extending the size of his research sample;[158] he is developing a technical rationale for some of the shape changes;[159] and he is beginning to publish the data for large numbers of hollow shapes so that his criteria may be tested by other scholars.[160] This last point is particularly important since the hollows, being on the back of bone and shell, have not generally been reproduced in collections of rubbings; as a result, the number of inscriptions, published as rubbings, that can now be studied in this way without access to the bones themselves is small.

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[153] Due perhaps to the greater difficulty of cracking shell rather than bone, or to the desire to have cracks more rigorously patterned on plastrons than on scapulas, hollows made on shell did not vary as markedly with time as those made on bone; they have not yet been found useful for classification (cf. Hsü Chin-hsiung [1974], pp. 12, 41).

[154] See Hsü Chin-hsiung (1970a), (1972), (1972a), (1973), (1973a); his dissertation (1974); *Menzies: Volume I*, pp. 3–8; *Volume II*, pp. xv–xix, 7–9. For earlier discussion of hollow shapes, see Ch'en Meng-chia (1956), pp. 10–11; *Jimbun shakubun*, introduction, pp. 117–122; and the other works cited by Hsü (1974), p. 280, n. 16. It has been suggested (*Jimbun* 848, *shakubun*, p. 311, n.; Itō [1962a], p. 261) that the various hollow-making traditions represent different divining traditions brought to the Shang court by diviners from various regions. But, with the exception of the diviner Cheng, whom Hsü (1974), pp. 86–87, suggests may be linked to certain fatter, less neat, hollows, which he dates to late period I, no link has yet been established between particular diviners and particular hollow shapes. It would also be fruitful to look for links between engravers and hollow makers. See too n. 159 and n. 162.

[155] To give but one example of his conclusions: in periods III and IV, the trend in hollow length was from long to short. Hollows "with wide, bowed shoulders and narrow rounded ends of giant size" were gradually replaced by "those with slightly curved shoulders and rounded ends of big size," which were replaced in turn by "those with narrow shoulders and flat or triangular ends" or by "hollows of teardrop shape or middle or small size with one sharp and one rounded end. Each style comes at a particular time, but they overlap . . ." (Hsü Chin-hsiung [1974], p. 256).

[156] Confronted with statements like "the singed area is very large," one hollow "is the same shape" as another, hollows of one period "are the same" as those of another (Hsü Chin-hsiung [1973a], pp. 25, 123; 21, 108; 22, 111), one can only wonder, how large is large? Large in relation to what? To area of bone, area of unburned portion? And what constitutes "sameness"? These are not quibbles; I frequently find myself uncertain as to whether one hollow was, as Hsü claims, the same as another. Hsü (1974), p. iii, has now refined his terms: he classifies the hollows into eight types: straight shoulders and pointed ends; slightly curved shoulders and sharp ends; slightly curved shoulders and rounded ends with needle-like extension; slightly curved shoulders and rounded ends; bowed shoulders and narrow rounded ends; slightly curved shoulders and narrow rounded ends; straight shoulders and triangular ends; straight shoulders and trident-shaped ends. He is also paying greater attention to the techniques involved in making the hollows (e.g., pp. 58, 92).

[157] Hsü Chin-hsiung (1974), pp. 207–257; see too n. 155.

[158] Hsü Chin-hsiung (1973a) was based primarily on bones in the Royal Ontario Museum (*Menzies*, *White*) and the Carnegie Museum (*K'u-fang*) in Pittsburgh. His dissertation (1974) includes material held in Kyoto (*Jimbun*) and at the Academia Sinica in Taiwan (*Chia-pien* and *Yi-pien*). The revised version of the dissertation will also include materials from the British Museum (*K'u-fang*) and Cambridge University (*Chin-chang*).

This aspect of oracle-bone scholarship is still in its infancy, and some of Hsü's conclusions may need revision.[161] But it is probable that hollow shapes will eventually become a new and reliable criterion by which to date the scapulimantic inscriptions. Hollow-makers, like engravers, must have left their individual marks behind them.[162]

4.3.2.4 *Hollow Placement*

The placement of the hollows, as well as their shapes, permits us to periodize the bones and shells in broad terms. Neolithic hollows were bored into the bone—sometimes into both front and back surfaces—but the arrangement of the hollows was crowded and disordered;[163] this disorder was also present in scapulimantic remains from early Shang sites.[164] Orderly placement, which had begun to appear on plastrons—but not yet on

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[159] See, for example, his attempts to relate hollow shape to the question of omen manipulation, or to the way in which certain shapes might facilitate cracking (Hsü Chin-hsiung [1974], pp. 58, 83, 92, 97; cf. [1973a], p. 126). Throughout he is aware that the careers of hollow makers did not necessarily correspond with those of diviners or engravers and is thus ready to assign transitional dates such as "late I or early II" when needed (e.g., [1974], pp. 86, 170, 207–208; cf [1973a], pp. 6, 63).

[160] Hsü Chin-hsiung (1973a) and (1974) reproduce the hollows in detail; the glosses to *White* also describe hollow size and shape; the second volume of *Menzies* includes descriptions of the chiseled hollows.

[161] My main hesitation about the reliability of Hsü's conclusions concerns the need to provide a sufficient number of touchstone inscriptions, dated by their ancestral titles (ch. 4, n. 1), which would unequivocally tie certain hollow shapes to certain periods. His attempt (1973a, passim) to date the RFG inscriptions to period IV rather than period I, for example, is weakened by a circularity of argument in which elements of what he is attempting to prove are assumed to be true. He has not yet demonstrated, to my satisfaction at least, that hollow shapes which he finds characteristic of period IV should be dated to period IV in the first place (cf. my comments at n. 62). The matter will be discussed in detail in *Studies*. For a review of Hsü (1973a) which makes related points, see Mickel, *Journal of Oriental Studies* 12 (1975), pp. 113–114.

[162] It would be interesting, for example, to see whether bones and shells (such as those listed in appendix 3, n. 11) which may have been prepared before they were sent in to the Shang (ch. 1, n. 69) reveal hollow-making traditions different from those that the Shang themselves practiced.

[163] Liu Yüan-lin (1974), pp. 99–112. It is true that three hollows were bored in a straight line on scapulimantic fragments excavated from the middle stratum at Kao-huang-miao so that they overlapped in what modern scholars have called the *san-lien-tsuan* 三聯鑽 "triple-connected boring" pattern (*KKHP* [1958.4], plate 8.1; Liu Yüan-lin [1974], p. 109, plate 11). This arrangement, if intended to facilitate the cracking of the bone, was partly misguided; the linked hollows were bored horizontally and thus ran counter to the veins of the bone. The An-yang bones, by contrast, have hollows which are elongated vertically and thus run with the veins, producing cracks more readily (see Chang Ping-ch'üan [1954], pp. 216, 217, fig. 9.4–6; Li Chi [1956], pp. 148–149; Itō [1962a], pp. 257, 258, fig. 26). This modification may have been prefigured by the *san-lien-tsuan* hollows on the back of 3.2.139, which may date from the pre-period I stage at An-yang (see n. 150).

[164] See, for example, the scapulimantic remains from Liu-li-ke and Erh-li-kang, conveniently reproduced by Liu Yüan-lin (1974), plates 6 and 7.

scapulas—from the Jen-min Park phase at Cheng-chou,[165] and which was characteristic of the hollows on the An-yang bones and shells, seems to have been related to the development of the double hollows and the formation of regular crack patterns.[166]

The general placement of the hollows on bone and shell has already been described for the historical period (sec. 1.5.1). Hsü Chin-hsiung has discerned several patterns involving the long chiseled hollows on scapulas which, together with other criteria like the hollow sizes and shapes, crack notations, and preface formulas, permit him to propose refined dates for period III and period IV scapulas. The validity of his hypotheses remains to be tested by further research.[167]

4.3.2.5 *Burn Marks*

The size and placement of the burn marks may also serve as periodizing criteria. The application of heat in Neolithic and early Shang times was relatively primitive. Even when hollows were prepared, the placing of the heat source and the resultant crack forms might still be irregular.[168]

Hsü Chin-hsiung is the first scholar to study the question intensively for the historical period. He has noted that the absence of round chiseled hollows, which are not generally

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[165] See n. 148 above. I find no evidence to support the contention of Itō (1962a), p. 259, that on the bones and shells excavated from the Jen-min Park phase, the bored circular hollow might be to either the right or left of the chiseled oval, resulting in no consistent direction to the cracks found on any one piece.

[166] Cf. n. 150.

[167] Hsü Chin-hsiung (1974), p. 209, identifies three hollow patterns near scapula sockets: the "one-one" pattern, in which the two columns of hollows start at the same level (e.g., the back of *Chia-pien* 446; 514; 531; *Jimbun* 1863; 1994; 1999; *Menzies* 1670; 1673; 1674, etc.; these and the examples listed below are taken from the list at Hsü [1974], pp. 212–240); the "one-two" pattern, in which the inner column of hollows (i.e., that on the side of the socket notch) starts one space below the outer column (e.g., the back of *Chia-pien* 546; 602; 638; *Jimbun* 2054; 2117; 2299; *Menzies* 1856; 1887; 1999); and the "one-three" pattern, in which the inner column of hollows starts two spaces below the outer column (e.g., the back of *Chia-pien* 669–671; *Jimbun* 2189; 2263; 2355; *Menzies* 1672; 1677; 1697). He finds (p. 167) that the one-three pattern appears in periods III and IV; it may appear in V, but he has never found it in period I. He also finds (pp. 241–242) that the one-three pattern was normal in period III, whereas the one-one pattern was normal in period IV; and he argues for a situation in which the use of the one-three type gradually decreased and the use of the one-one type, which was related to the increasing use of shorter hollows, gradually increased (p. 244). The matter is complicated, however, by the fact that the one-one type was normal for the period III inscriptions which bear diviners' names (p. 245); thus he must posit a trend from one-one early in period III to one-three later in III, and back to one-one in IV (p. 245). Other explanations may be possible. In particular, greater rigor is needed to link specific hollow patterns to specific periods (cf. nn. 44 and 161). And it may also be necessary to relate hollow pattern (and size) to the size of the scapulas themselves, i.e., to the amount of working space available to the hollow maker.

[168] The nature of the Neolithic burn marks and cracks has not been well reported. Liu Yüan-lin (1974), pp. 99–119, summarizes the evidence. Some of the Erh-li-kang scapulas were burned directly on the unprepared surface and also, on the same bone, in prepared hollows (*Cheng-chou Erh-li-kang*, p. 37). See n. 150 on what may have been early An-yang experiments with placing the heat source. In this connection, it would be worth studying the point at which the Neolithic or Shang diviners succeeded in producing *pu* cracks at all. The reports do not always provide specific information, but in some cases (e.g., the sheep scapulas from the Lung-shan site at K'e-sheng-chuang 客省庄; see *Feng-hsi fa-chüeh pao-kao*, p. 68, plate 35) no cracks appear to have formed.

found on scapulas after period I (sec. 4.3.2.3), meant that more heat was required to crack the bone; as a result, the area burned in and around the single, oval hollow was larger and the bone surface was more frequently chipped in the later periods than it had been in period I.[169] He has also discerned differences in the burn marks of periods III and IV.[170] The distinctions he draws are real, but his hypotheses about the way the burn marks may be related to specific periods need further study.[171] In particular, such study will require not only that hollow shapes on the back of bones be reproduced but that they be reproduced in such a way that the character of the burned area can readily be identified.[172]

It will be clear from sec. 4.3.2 that Hsü Chin-hsiung's pioneering analyses of related physical criteria—hollow shapes, hollow placement, burn marks—are helping to develop significant new periodizing techniques. Future research will, it is hoped, refine the criteria still further and apply them to an ever larger corpus of inscriptions, will critically evaluate the way these criteria can be related to the inscriptions of particular periods, and will provide a rationale for such stylistic changes. Physical criteria are of major importance and must be considered by every scholar seeking to date the oracle bones.

4.3.3 *Archaeological Criteria*

No detailed, comprehensive account of the relationship between oracle inscriptions and excavation sites has yet been published.[173] And for the reasons given below, it is not certain that one ever will be. Nevertheless, it is important to study, when possible, the pit or trench from which particular oracle bones were excavated and their position with regard to one another and other datable objects in the ground.[174] Archaeological context can serve as a primary criterion in providing a ***terminus ante quem*** for the absolute date of an inscription; thus, an oracle bone found in an undisturbed Western Chou stratum is likely to be no later than Western Chou in date; but the Western Chou context cannot determine the *terminus post quem* for the inscription, which might have been incised centuries before.

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[169] Hsü Chin-hsiung (1973a), pp. 19, 101.

[170] In period III, the crack was made by touching the bone lightly with the heat source to leave a large, perfectly formed burn mark; e.g., the back of *Menzies* 1775; 1812; 1933; 2068. In period IV, by contrast, a very hard, perhaps metal, object seems to have been pressed firmly into the bone; the burn mark was always small and tended to chip the bone more deeply than had been the case in period III; e.g., the back of *Menzies* 2343; 2462 (for these and the previous examples, see the drawings in the front of Hsü [1973a]); 2528 (photo no. 26 at the back of Hsü [1973a]). The distinction "is very easy to recognize from observation of the bones" (Hsü [1974], pp. 255–256). Hsü also notes ([1973a], pp. 24, 119) that the heat source often touched both walls of a hollow in period IV, something that rarely happened in period III when the hollows were wider. For Hsü's comments on the period III and IV hollow shapes, which must be considered jointly with the burn marks, see n. 155.

[171] Cf. the questions raised in n. 161.

[172] See, e.g., the symbols given by Hsü Chin-hsiung (1973a), pp. 40–41; cf. n. 160.

[173] For the individual archaeological reports, see Kuo Pao-chün (1933) and (1933a); Li Chi (1930), (1933), (1949); Shih Chang-ju (1933), (1945), (1947); Tung (1929a), (1929b), (1929c), (1933), (1936), (1949), (1949a). For summaries and interpretations, see Kaizuka and Itō (1953), pp. 19–30; Hu Hou-hsüan (1955), pp. 43–121; Ch'en Meng-chia (1956), pp. 35–42; Itō (1959); Shih Chang-ju (1959), pp. 319–329; Chang Ping-ch'üan (1967), pp. 831–851; Tung (1965), pp. 14–15; Li Chi (1977). It is valuable to read the pieces by Itō and Shih in conjunction.

[174] This is only possible in the case of oracle bones that were scientifically excavated; for these, see the archaeological reports listed in n. 173. For an interesting attempt to deduce the location where certain privately excavated inscriptions must have been found, see Itō (1971), p. 88.

4.3.3.1 *Pit Provenance*

For establishing relative dates within the Shang dynasty, pit provenance is a secondary criterion whose usefulness may vary from pit to pit. This is so for a number of reasons. First, if the contents of a pit are judged to be chronologically homogeneous, that judgment—barring the presence of criteria such as ancestral titles or diviners' names on every single fragment—can never be more than probable; the fact that one fragment of unknown date was found with ninety-nine fragments dated to period I, say, does not necessarily require that the unknown also be dated to period I, probable though that may be.[175] Second, if the contents of a pit are chronologically mixed, it does not necessarily follow that the oracle bones from the bottom stratum (assuming that the strata within the pit have been accurately reported; see sec. 4.3.3.2) are earlier in date than those from the top. If the oracle bones were first stored in sequence above ground, the earliest bones, then on the bottom of the pile, would have been shifted to the top if the pile were inverted when it was buried; and if the bones were poured into the pit,[176] or if there were more than one pile above ground, the chronological relationships might have become thoroughly confused.[177] All cases, in short, must be judged individually. Relative dates derived from pit provenance are probabilities rather than certainties.[178]

It is rarely possible to use other objects found in a pit, such as bronzes or pots, to date the inscriptions; the inscriptions, whatever their problems, provide the most precise clues about date that we have, and they are usually used to date the other contents of the pit, or the building foundations above it, rather than vice versa.[179]

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[175] Pit E16 is a case in point. It contained some 300 fragments of pyromantic bone and shell; 6 pieces bore the names of RFG diviners (Ch'u 𢓊 : *Chia-pien 3003*; Shao 勺 : *Chia-pien 2941*; *3012*; *3045*+3047; Tui 𠂤 : *Chia-pien 3045*+3047; *3083*; *Chia-t'u 163*); all the other fragments have been dated to period I (e.g., *Chia-pien 2945*; *2949*; *2956*; *2967*) (Tung [1933], p. 361, argued, on the basis of ambiguous ancestral titles, that *Chia-pien* 2964, 2984, and 2989 should be dated to period II. Ch'ü Wan-li, in his *k'ao-shih*, dates these to period I. Tung also dated 4.0.0264 [containing the titles Tsu Chia and Tsu Keng] to period II, but the registration number appears to be wrong; *Chia-pien* 3165 [the present 4.0.0264] is a period I fragment containing neither of these titles.) Tung concluded that the pit contained divinations from periods I, II, and IVb (i.e., the RFG inscriptions). It would be more plausible, however, to consider that the RFG inscriptions should also be dated to period I (or II) (cf. ch. 2, n. 18). But the contents of the pit, by themselves, cannot resolve the issue.

[176] The slope of the shell fragments in YH127 indicated that they had been poured into the pit from the north (Shih Chang-ju [1947], pp. 41–42).

[177] To cite but one example, all but one of the six RFG pieces (originally in eight fragments) in E16 (n. 175) were found at a depth of 8.0 to 8.8 meters, the bottom level of the pit. (The stratigraphy of E16 is given by Li Chi [1949], p. 251.) But the fragments of one RFG diviner, Shao, were found both at the bottom level (*Chia-pien 3012*; *3045*+3047) and at the top level (*Chia-pien 2941*; at a depth of 3.5 to 4.5 meters). More marked chronological confusion was found in other pits; e.g., A26, E9 (Tung [1929a], p. 180); 5:H20; longitudinal trench 13 ping; TLK south sector (Shih Chang-ju [1959], pp. 320, 321).

[178] The situation in particular pits, as well as the reasons why the Shang buried their oracle bones, will be considered in *Studies*.

4.3.3.2 *Excavation Reports*

Due in some cases to the inadequacy of the published reports and in other cases to the absence of any report whatever, we are not as well informed as we should be about the provenance of every "scientifically excavated" inscription. Excavators on the first three An-yang digs (1928–1929), believing that floods had disordered the whole site and, further, that the site had been occupied only during the short period from Kings Wu Yi (period IVa) to Ti Yi (period Va), did not pay full attention to the exact provenance of the oracle bones, believing periodization both impossible and unnecessary. It was only at the time of the fifth dig (fall 1931) that these preconceptions were swept away and the excavators realized that the location of every bone and shell fragment was potentially significant.[180]

Some of our uncertainties might have been resolved had Tung Tso-pin's promised report on the excavations ever appeared.[181] The summary of Shih Chang-ju (1959) does not fill in all the gaps, and we are still forced to speculate about the provenance of a significant number of the inscriptions in *Chia-pien*.[182] Even in those cases, which are in the

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[179] Cf. Itō (1959); Shih Chang-ju (1959), pp. 319–320. An exception to this generalization may be provided by the oracle bones excavated on the southern edge of Hsiao-t'un in 1973. According to the preliminary report (*KK* [1975.1], pp. 27–46), many of the oracle bones were found in strata that could be classified as early, middle, or late and were found in association with pots and pot fragments, for which a stylistic and technical evolution could be developed. The fact that inscriptions of the Tui-diviner group from T53 ④A were found with vessels of early rather than late style clearly has a bearing on the Old and New School controversy (see ch. 2, n. 18). Hsiao Nan (1976), for example, uses the new evidence, both inscriptional and archaeological, to argue that the RFG inscriptions belong to late period I, but the validity of the pottery typology needs to be demonstrated more fully (as it will be, presumably, in the final report) before these conclusions can be accepted.

[180] Tung (1933), p. 351.

[181] The title of this projected work was *Chia-ku wen-tzu yü Yin-hsü yi-chih* 甲骨文字與殷墟遺址; it is referred to by Tung (1949), p. 240. Cf. n. 183.

[182] A detailed report of digs 1 and 2 in sector F, on the south edge of the village, has not been published, possibly because no major ruins were found there (Itō [1959], p. 339). Nor are some of the early reports from other sectors sufficiently clear. As a result, we cannot be certain whether *Chia-pien* 1–109 and 297–352 came from E9, E16, E17, or E18; whether *Chia-pien* 110–178, 368–375, and 391 came from A26 or A25; I find no provenance cited for *Chia-pien* 181 and 282–296 (cf. Ch'en Meng-chia [1956], p. 169). We are uncertain if *Chia-pien* 448–489 came from west of F36 (south of the village) or from longitudinal trenches 1 and 2 in sector B (Ch'en, op. cit., p. 143); we can only suppose that *Chia-pien* 490–928 came from sector F within the village (Ch'en, op. cit., pp. 143, 147) but that *Chia-pien* 508 came from latitudinal trenches 1 and 2 in B. Similarly, we can only speculate that *Chia-pien* 3224 and 3234 came from sectors B and E; that *Chia-pien* 3636 and 3638 came from E; that *Chia-pien* 3483 came from trenches F1–4 (Ch'en, op. cit., pp. 143–144). No detailed report has been published about the provenance of the inscriptions excavated in digs 8 and 9 (Itō [1959], p. 350); thus, we have no details about the provenance of many of the inscriptions from *Chia-pien* 3691 to 3938. Other examples of this sort can be given.

great majority, when we know the pit provenance of a scientifically excavated inscription, we are frequently not informed about the stratigraphy within the pit, and thus the relative position of the inscribed bones and shells is not clear.[183] And even when the stratigraphic data are supplied, the system of registration numbers adopted by the archaeologists results in inevitable ambiguities.[184]

In addition to these and other defects,[185] the archaeological reports present us with a cold trail. Most were written thirty or forty years ago, many by scholars no longer living.

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[183] Tung (1949), p. 229, indicated that tables showing the relationship between the registration numbers and strata would eventually be published. One hopes that the information has been preserved in his notes (cf. n. 181 above) and that Shih Chang-ju's forthcoming *Hsiao-t'un ti-yi-pen: yi-chih ti fa-hsien yü fa-chüeh: ting pien* 小屯第一本：遺址的發現與發掘：丁編, to be published by the Academia Sinica, will contain more information.

[184] For a description of this system see ch. 1, n. 31. The stratigraphic ambiguity in the registration system arises from the fact that the second number arbitrarily divides originally contiguous materials into two numbered sequences of bone and shell. The third number may thus indicate the relative position of bone to bone or shell to shell, but it apparently fails to indicate the relative position of bone to shell. Thus, to give an example, we know that TLK, south sector, produced shells 3.0.0777–3.0.1000 and bones 3.2.0383–3.2.0923 (Shih Chang-ju [1959], p. 321). If we assume (see below) that the sequence of the numbers reflects the situation in the pit, we can conclude that shell 3.0.0777 lay above 3.0.0877 which in turn lay above 3.0.0977 and that bone 3.2.0383 lay above 3.2.0483. But we have no way of telling from the registration numbers which shell lay above which bone and vice versa, for the registration system fails to indicate whether 3.0.0777, for example, lay above or below 3.2.0777. Yet another difficulty concerns the question of when the registration numbers were first assigned to the fragments; this is nowhere stated explicitly, but since, in more recent times, members of the An-yang Archaeological Research Station do not number pottery fragments until they reach the workroom (this information was obtained during the visit of the U.S. Paleoanthropology Delegation to An-yang on 1 June 1975), it is likely that the registration numbers were not assigned to the oracle-bone fragments till well after they had left the pit. It is not certain in each case, therefore, that the sequence of registration numbers finally assigned reflects the original lie of the bones in the pit (cf. n. 186). And in some instances, during the first dig (1928) at least, the registration numbers of oracle bones from different pits that were excavated simultaneously were commingled; e.g., 1.2.0123 (from A26; 20 October); 1.2.0128–1.2.0139 (from F24; 22 October); 1.2.0145 (from A26 again; 23 October); 1.2.0157 (from F31; 23 October); 1.2.0189 (from F24 again; 25 October). I glean this information from Tung (1929a), pp. 180, 181. This means that the registration numbers themselves do not necessarily provide reliable indications for estimating the total number of fragments in a pit; 1.2.0123 and 1.2.0145, for example, were found in A26, but we cannot conclude that the fragments with the intervening 21 numbers also came from A26; some of them, at least, came from F24. Finally, it is not certain if the large numbers of blank oracle bones excavated were assigned registration numbers at all; to cite but one example, we are told that 721 of the 746 fragments excavated from F37 lacked writing (Tung [1929b], p. 182), but the only registration numbers recorded run from 1.2.0171 (*Chia-pien* 415) to 1.2.0218 (*Chia-pien* 445), representing only 48 fragments. Those estimates of total numbers of fragments excavated (as in appendix 3, sec. 1), therefore, that depend upon the registration numbers for their fragment counts may not be fully accurate, at least when using data from the first dig.

[185] For other problems, see, for example, Itō (1959), pp. 344, 354–355, 368, n. 11. The archaeological reports give the impression that the excavators were learning on the job. For example, Shih Chang-ju (1947), p. 11, admits that the methods used in dig 14 were too hasty; and he notes that it was only in dig 15, i.e., after the great bulk of the inscriptions had been excavated, that two big advances in technique were introduced: a pulley device to measure the depth of strata and a camera frame for taking sequential photos. And to extend the list of problems still further, the reports are not always consistent. For example, according to Shih Chang-ju (1959), p. 322, shells 15.0.0001–15.0.0360 were excavated from YH251; according to Tung (1949a), p. 288, some of these—shells 15.0.328–15.0.374—were taken from YH253, not YH251. Since the pits were not close, the contradiction is serious. Similarly, according to Tung (1949a), p. 288, shells 13.0.628–

The original sites have been covered over and the land returned to agriculture. It is doubtful, therefore, that a fully accurate archaeology of the inscriptions excavated before 1937 will ever be written. More rigorous archaeological techniques will presumably be applied to new finds. The archaeology of the large number of oracle-bone inscriptions excavated in spring 1973, for example, will, it is hoped, be reported in detail, so that this and subsequent discoveries may eventually help resolve some of our dating problems.[186]

4.3.3.3 *Site Distribution*

It is worth stressing, in conclusion, that the Hsiao-t'un site has not been thoroughly excavated. In the late 1920s and the 1930s, the Academia Sinica teams concentrated primarily on the sector northeast of the village (that is, between the village and the Huan River) and the sector on the southern edge of the village (see fig. 28). Other areas in the immediate vicinity of Hsiao-t'un have not been excavated, and even sections of the central site where the building foundations were found were not thoroughly probed.[187] This raises the possibility that major inscription caches may still lie in the environs of, and even under the buildings in, modern Hsiao-t'un. Any discussion of the distribution of inscriptions by

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13.0.17714 came from YH127; according to Shih Chang-ju (1959), p. 322, shells 13.0.17715–13.0.17756 should also be included. At one point Ch'en Meng-chia (1956), p. 156, appears to agree with Shih Chang-ju; but at another point in the same book (p. 170), he says that *Yi-pien* 8502–8531 (= 13.0.17718–13.0.17756) came from YH6, as Tung ([1949a], p. 288) had reported. Again, the pits are not close. Further contradictions of this sort may be noted.

186. See n. 179 for the way recent finds may help resolve the dispute over the periodization of the RFG inscriptions. The limitations of the reports of the 1930s were partly those of contemporary archaeology anywhere in the world, partly those imposed by the unsettled condition of North China, which must have made scientific excavation extremely difficult. For an account of the banditry in the An-yang region, for example, see Creel (1935), p. 178; (1937), pp. 30–31 and plate II; Karlbeck (1957), passim. Control of the site was so uncertain that between the third and fourth Academia Sinica digs (December 1929 and March 1930) the Honan provincial authorities excavated some 3,600 fragments, probably in the region between pits A26 and A29 (the best published in *Wen-lu*), and the villagers excavated another 100 (62 of which are now at Columbia University, 38 at Cambridge University); see Tung (1945), pt. 2, ch. 6, pp. 6a–b; Jung Keng (1947), pp. 24, 27; Li Yen (1966), p. 3; (1970), pp. 257, 319–320. Similarly, the Sino-Japanese war (Tung [1964], p. 52, editor's note) may account for our ignorance about the stratigraphy of the bones and shells in YH127, the largest cache of oracle bones ever excavated. Given the way in which the great wadded ball of mud and plastrons, weighing over three tons, was packed into a coffinlike box, subjected to heavy rains, bounced around on trucks and trains, and damaged in Hsü-chou—all this before the pieces were separated (Shih Chang-ju [1947], p. 8; Li Chi (1977), p. 116), it is unlikely that the registration numbers accurately reflect the lie of the plastrons in the ground. And we do not even know which shells were at the top and which shells were at the bottom of the pit. If the RFG inscriptions are really from period IVb (see ch. 2, n. 18), it is particularly regrettable that we do not know how they lay with regard to all the period I inscriptions.

187. Only the Yi 乙 and Ping 丙 areas were excavated comprehensively; the Chia 甲 section of foundations was not thoroughly trenched, and the foundations of Chia 8, 9, 14, and 15 were not completely excavated (Shih Chang-ju [1959], pp. 317, 318, 330).

period (appendix 3) must consider that the comparatively blank periods in our chronology may be related to the blank spaces on the excavation maps.[188]

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[188] That our present III + IV inscriptions were excavated principally in sector F, south of Hsiao-t'un, raises the possibility that the inscriptions buried under the modern village, if they exist, might also be from this period. This view is supported by the fact that most of the 4,829 inscribed bone and shell fragments excavated on the southern edge of Hsiao-t'un in 1973 are said to be dated to period IV (*KK* [1975.1], p. 39). The use of modern probing techniques, such as resistivity surveying (Goodyear [1971], pp. 229–236, 239–243) may eventually permit caches of bone and other materials to be located under the village itself without inconveniencing the inhabitants.

CHAPTER 5

The Oracle-Bone Inscriptions as Historical Sources

5.1 *Other Sources: A Preliminary Note*

Oracle-bone inscriptions are not the only contemporary written sources available to the historian of Shang China. Putative Shang writings on silk, wood, or bamboo, have not been found, but we do possess nondivination records on bronze, bone, pottery, jade, and stone.[1] Certain bronze inscriptions, which all date from late in the historical period,[2] have been useful for studying such matters as the late Shang calendar[3] and aspects of Shang ancestor worship and lineage organization;[4] they present their own problems of decipherment, authenticity, and dating.[5] The other records have to be used

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1. For an introduction to nonoracular Shang records, see Ch'en Meng-chia (1956), pp. 44–46; Su Ying-hui (1957), p. 268; Cheng Te-k'un (1960), pp. 185–191. See too ch. 1, nn. 21 and 22.

2. For the evolution of inscriptions on bronze, see Kane (1973). Since most of the bronzes scientifically excavated at Hsiao-t'un lack inscriptions (ibid., pp. 337–339), and since, as she argues, the great majority of Shang bronzes inscribed with an ancestor dedication come from period V (ibid., pp. 340–342), bronze inscriptions provide no information for the first part of the historical period. It is possible that some of the longer Shang bronze inscriptions were the product of provincial foundries (ibid., p. 361, n. 35; cf. Barnard [1958], p. 36, n. 21); if so, they stand in useful contrast to the oracle inscriptions which were documents made at the center of the kingdom.

3. E.g., Tung (1948b), pp. 198–207; Shima (1966), pp. 12, 15–16; Hsü Chin-hsiung (1971), p. 5a.

4. E.g., Chang Kwang-chih (1973), p. 116.

5. Shang bronze inscriptions are, as Britton (1940), p. 5, noted, "brief but plentiful." It has been estimated, for example, that of the 1,295 Shang and Western Chou bronzes that record *t'ien-kan* ancestral names, 1,102 are of Shang date (Chang Kwang-chih [1973], p. 116). For an introduction to the provenance of the scientifically excavated bronzes, see Kane (1975), p. 99, n. 14. On the general question of forged bronze inscriptions (though his concern is mainly with Chou models), see Barnard (1959), (1968), (1974); cf. Chang Kuang-yü (1974); Matsumaru (1976, ed.). Akatsuka (1959) provides transcriptions, translations, and commentary for 102 Shang bronze inscriptions, but the work should be used with caution. For an introduction to the clan insignia on the bronzes, see Hayashi Minao (1968). For a comprehensive approach relating the inscriptions to decorative motifs, vessel shapes, and the like, see Chang Kwang-chih (1970), (1973). For other introductory works, see ch. 3, nn. 13–15 and 31.

on a catch-as-catch-can basis; they are few in number and, on the whole, uninformative. This situation may change as new finds are made,[6] but at present the tens of thousands of oracle-bone inscriptions, repetitive and formulaic though they frequently are, are the best written records we possess for understanding Shang culture.

It goes without saying that the historian will also rely on other archaeological evidence, such as settlement sites, housing foundations, burial practices, and industrial remains. Studies in art history dealing with the vessel shape and decor of scientifically excavated bronzes, to cite but one example, promise to tell us much about the evolution and extent of Shang culture.[7] Ethnographic studies of comparable cultures may also suggest new ways in which the Shang evidence may be interpreted, but such information should only be used when it can be well supported by the Shang evidence itself.[8] Nothing in what follows should be taken to imply that the oracle-bone inscriptions are to be used to the exclusion of other evidence. A scholar who has mastered the oracle bones has not mastered all the written sources of Shang; and all these written sources must be used, when it is appropriate to do so, in conjunction with the unwritten archaeological evidence and the insights to be gained from comparative studies. Some Chou and Han traditions may also be used to throw light on the Shang situation, but their historicity must be evaluated with great care in each case.

5.2 *The Dangers of Generalization*

In using the oracle-bone inscriptions as historical sources, we must first beware the "archival fallacy" which confuses the archive with the world.[9] The mental contours discerned in the divination inscriptions, which are religious and formulaic documents, may not have been typical of Shang mentality in other areas of life. But there are, I believe, good grounds for using the inscriptions, with appropriate caution, as a guide to at least certain aspects of the Shang world view.

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[6] Particularly interesting are the sixty-six Shang symbols, some of which are ancestral to later *chia-ku* forms, found on pottery fragments at Wu-ch'eng 吳城, Ch'ing-chiang 淸江, Kiangsi, 1973-74 (*WW* [1975.7], pp. 56–60; for the significance of the symbols, and their periodization, consult T'ang Lan [1975] and Chao Feng [1976]). These may be compared with the symbols inscribed on pot fragments from Kao-ch'eng 藁城, T'ai-hsi 台西, Hopei, excavated in 1973 (Chi Yün [1974]). More finds such as these, which provide important evidence of cultural diffusion over long distances, will throw clearer light than we now have on the origins of Shang writing. For a hypothesis about the Neolithic origins of the Chinese writing system, see Ho (1975), pp. 223–235; but see too my forthcoming review in *Harvard Journal of Asiatic Studies* 37.2 (1977).

[7] E.g., Kane (1974/75). Barnard and Satō (1975), which catalogs all the reports of sites from which pre-Eastern Han metallurgical remains were scientifically excavated in China between 1929 and 1966, is an invaluable reference for this kind of study.

[8] To cite but one example of the value of comparative studies, many insights into the role that divination played in Shang culture can be gained by reading accounts of divination in other societies; The works of Evans-Pritchard (1937), Middleton (1960), Beattie (1967), Park (1967) and Turner (1975) are of particular value. For an anthropological appreciation of Shang divination, see Monroe (1974). See too the references cited in ch. 3, n. 34.

[9] On the archival fallacy, see, in particular, Gelb (1967), p. 4; cf. Fischer (1970), pp. 104–130.

I say this for two reasons. First, because the topics covered by the divinations are numerous and varied. It is true that the bulk of the inscriptions is concerned with the content, nature, and timing of religious sacrifices. But many other divinations cover wider areas of royal concern: weather, agriculture, hunting, warfare, travel plans, selection of personnel, sickness, dreams, childbearing, and so on (sec. 2.3.1). Many of these are subjects that we would regard as falling within the secular province of the meteorologist, farmer, hunter, doctor, psychoanalyst, obstetrician, and so on, but the presence of these topics on the bones indicates that for the Shang ruler they had their supernatural dimension. It seems that virtually all political questions were religious questions too, and therefore legitimate topics—in fact necessary topics—for divination. The secular and the sacred were not distinct; the secular was an aspect of the sacred. The possibility that nonoracular, nonreligious sources would tell a more secular tale cannot be excluded. But all the indications we have—archaeological, traditional, and ethnographic, as well as inscriptional—present a consistent and convincing picture of a theocratic polity in which matters of state were equally, and perhaps by definition, matters of religion.[10]

Second, I believe that we are justified in using the inscriptions as a reliable and central source for Shang concerns because it is the king who, either directly or by proxy, divined. Unless we are willing to believe that the Shang kings were hypocrites, it is clear that the topics were important to them and were felt to be important to their ancestors and retainers. The king was a theocrat who presumably ruled in part by virtue of his extraordinary ability to communicate with the ultrahuman powers. The bone records, therefore, are not simply a discarded priestly archive. They are religious-political records of decision making, incantation, reassurance, and communication at the highest level of theocratic government. If a topic does appear in the bones, we are justified in thinking that it was a topic of central concern to the Shang kings and—since there are likely to have been few atheists in a Bronze Age theocracy—to the Shang state as a whole. And if a topic is viewed in a certain metaphysical way in the bones, it is plausible to assume that this cast of mind expresses something that was central and fundamental to Shang culture.[11]

This is not to say that there were not other concerns, that there were not other modes of conceptualization. The oracle inscriptions do not permit us to delineate the entire core of Shang culture; but they do permit us to probe a significant segment of that core. For the gathering of the plastrons and scapulas, the making of the cracks, and the carving of the inscriptions required much effort; that effort alone indicates how greatly pyromancy must have been valued. Shang divination records, like the ritual bronzes, were the product of intense mental effort, attention to cultic detail, and concentration of economic and bureaucratic resources. It is not out of the question that if the Shang kings had had to choose one set of documents to transmit to future historians, they would have chosen the ones we now have.

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[10] The issue will be discussed further in *Studies*. For the way divination has dominated existence in other societies and the way a religion may be characterized by divination, see, for example, Evans-Pritchard (1937), pp. 258–368 (cf. Winch [1964], p. 311); Lin Sheng (1963), pp. 162–163; Hultkrantz (1968), pp. 75, 86; Roux and Boratav (1968), p. 282. These and other anthropological studies suggest that the Shang may also have practiced nonpyromantic forms of divination; oracles, once accepted, are sought in many forms.

[11] On the identity between divinatory and normal modes of thinking in societies in which divination is commonly accepted, cf. Vernant (1974), p. 10. The theological assumptions underlying Shang divination, together with divination's religious and political role, will be discussed in *Studies*. For a preliminary assessment, see Keightley (1972) and (1975c).

Even when we turn to the subject of Shang religion, however, the topic most fully documented in the inscriptions, we must still admit that the oracle bones are not fully adequate sources. The picture of Shang religion which the inscriptions record is limited and abstract. It is possible that some areas of Shang religion may have involved no divination at all, and of them we would have no record. The divinations we do have are but a catalog or prompt book for what was presumably a far richer curriculum of cultic practice. The music, the mimes, the chants, the visits of the ancestral powers, the cry of the victims, the smell, smoke, flame, and blood—all the dramatic details may be imagined, but they are unrecorded. We know the names of rituals, we know that there were dances; but we have little idea what actions or feelings they involved. Inevitably, therefore, our view of Shang religion is monochromatic and flat, drained of emotion. Shang ancestor worship was ordered, hierarchical, bureaucratic—these traits are well recorded. The inscriptions give us a true picture of a skeleton, but they do not allow us to generalize about the flesh and blood that once animated it.[12]

A colleague once asked me if I knew the significance of the *t'ao-t'ieh* "monster mask" found on so many Shang bronzes. I did not. "If you don't understand the *t'ao-t'ieh*," I was told, "you cannot understand the Shang." I still do not understand the *t'ao-t'ieh*;[13] it is one of the numerous enigmas which the inscriptions have not solved. Let the *t'ao-t'ieh* serve as a salutary reminder of our ignorance and the need for caution.

5.3 *The Nature of the Sample*

All historical materials are incomplete, but some are more incomplete than others. If it be accepted in the Shang case that the divinations record certain key concerns of the elite and that used with the proper caution they may be used to generalize about certain aspects of elite life, a further question remains. To what extent may the inscriptions be used to generalize about themselves? In other words, to what extent, and how faithfully, does the present corpus of inscriptions represent the total number of inscriptions originally made?

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[12] On the problems involved in defining the essence of religion, and in systematizing varieties of religious experience, see Clavier (1968).

[13] For an introduction to the *t'ao-t'ieh* motif and its possible significance, see Waterbury (1942), pp. 1–3, 129; Linduff (1972), pp. 28, 39, 56, 59–60, 119, 121; Chang Kwang-chih (1973b), pp. 516–518; Itō (1975), pp. 351–367.

5.3.1 *Typicality*

Preliminary research suggests that we may now have approximately 5 to 10 percent of the original corpus of bones and shells inscribed by the Shang (see appendix 3). The smallness of this figure—which, though a crude estimate, is probably of the right order—makes it particularly important to determine the extent to which the content of our sample may or may not be representative of the content of the original corpus. There is no certain way to resolve this issue, and all answers must be provisional until every square meter of the area once occupied by the Shang is excavated. My own conclusion, which is highly tentative, is that the range of topics we have (sec. 2.3.1) gives an accurate indication of the true range of Shang divination but that the relative weight given any one topic at any one time is less likely to be accurate.[14]

I draw this conclusion primarily from the patterns which may be discerned when the inscriptions are classified by period. Some of these patterns, involving the prefatory formula (sec. 4.3.1.7), the frequency of prognostications and verifications (secs. 4.3.1.8, 4.3.1.9), the use of crack notations (sec. 4.3.1.11), and the presence or absence of complementary charge pairs (sec. 4.3.1.10), are discussed in this book; others, such as the evolution of religious conceptions, will require further treatment.[15] It is always possible that the excavation of new caches could disrupt the patterns so far established. The fact, however, that the approximately 47,000 published fragments we now have, drawn from a variety of pits and areas in the An-yang region, reveal a large number of consistent trends suggests the more probable alternative—that these finds are indeed representative when considered as a whole. Barring the discovery of storage pits used by a new and as yet unknown group of diviners (pre-Wu Ting, nonroyal, or noncourt, for example), or of large stores of inscriptions dealing with topics that are poorly represented in the present corpus, at least for certain periods,[16] I doubt that new finds of inscriptions, though they may provide us with information in greater depth, will radically affect our views of the Shang.[17] Our divination materials, in short, have the appearance of a random, representative scatter.

The only significant uncertainty in this regard concerns the virtual absence of inscriptions about the systematic, five-ritual cycle of the New School in period III + IV.[18] Whether the disappearance of the New School rituals of IIb is real or apparent is uncertain. A large number of period III+IV finds came from the Ta-lien-k'eng, approximately 370 meters northeast of the village center, and from sector F, approximately 90 meters south of the village center, on the very edge of Hsiao-t'un;[19] the failure of the III+IV inscriptions we now have to record the sacrifice cycle might be due to the fact that the storage pit (or pits) in which such inscriptions may lie—a period III+IV analog of YH127, perhaps—is yet to be found. The fact that we already have far more inscriptions from period III+IV than from periods II or V (sec. 5.3.2), however, emphasizes the uncertainty of these speculations.

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[14] Such a conclusion applies to the whole corpus of approximately 47,000 fragments that have so far been published. (I obtain this figure by adding the estimated 5,000 fragments in *Menzies* and *White* to Tung's 1953 estimate of about 42,000 fragments published; see appendix 3, n. 2). It cannot be applied to individual collections, many of which—reflecting perhaps the storage pit or pits from which they derived, as well as the accidents of preservation—show an atypical distribution of materials by subject matter, period, etc. To cite but one example, *Jimbun* has virtually no *t'ien* 田, "hunt," inscriptions from period II, even though such divinations were common at that time (S289.3–290.1); similarly, it has remarkably few hunt inscriptions from period V (cf. S293.4–297.1).

[15] For a preliminary assessment, see Keightley (1973a), pp. 13–25, 37–38; (1975c), pp. 49–52. The evolution of divination practice and religious conceptions will be considered more fully in *Studies*.

[16] See, e.g., sec. 4.3.1.12; cf. ch. 4, n. 138.

[17] Note that the preliminary report about the inscribed fragments excavated in 1973 (*KK* [1975.1], pp. 27–46) contained few surprises.

[18] Cf. ch. 2, n. 27. For the five rituals, see ch. 4, n. 102.

If, with that one possible, and major, exception, the random nature of our sample is provisionally accepted, it follows that valid generalizations may be made about the scope of Shang divination. Generalizations about quantitative matters, such as the percentage of sacrificial wealth offered to particular ancestors, or the proportion of divinations concerning Ti, the ancestors, and the nature powers, or which enemy tribes were more troublesome than others, can be made with less certainty since the number of inscriptions involved is frequently small and emphases could be significantly altered by the discovery of a dozen new inscriptions. Even so, the fact that we are working with a large number of inscriptions (see appendix 3) suggests that the relative weight given any one particular topic is not likely to be grossly inaccurate. One can only keep in mind that such generalizations are not fully reliable, being based on what may be only 5 to 10 percent of all the inscriptions made.

5.3.2 *Chronological Distribution*

We have no way of telling whether divination inscriptions were made in any quantity prior to the reign of Wu Ting. The presence of two inscribed bone fragments at Cheng-chou,[20] together with the fact that the Wu Ting inscriptions appear mature and sophisticated in form, suggests that the royal generations immediately preceding Wu Ting may have recorded their divinations on bone and shell. But few, if any, such records have been discovered.[21]

Within the historical era from Wu Ting to Ti Hsin, the inscriptions we have are not distributed evenly by period. Preliminary research suggests that approximately 55 percent of all fragments come from period I, 31 percent from III+IV, and less than 7 percent each from periods II and V (see table 31).[22] Whether these variations are due to an accident of discovery—so that large undiscovered caches of post-period I bones, especially those of the New School of periods II and V, may still redress the balance—or whether it was primarily bones from these periods that the Hsiao-t'un villagers ground up for medicine and fertilizer or threw into dry wells is not certain.[23] Nor do we know whether these differences reflect the different durations of the kings' reigns and thus of the five periods,[24] or whether divination was indeed more frequent in period I than in all the other periods combined. If we assume that the decreased scope and increased formalization of Shang divination by period V (sec. 4.3.1.12) was real and not apparent, the last alternative seems more likely; it is plausible to assume that as divination became more routine, as it did with the New School of period IIb, it may eventually have become more perfunctory and less important, and would thus have been practiced less often.

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[19] For TLK, see Ch'en Meng-chia (1956), p. 143; Itō (1959), pp. 349–351, 356; Shih Chang-ju (1959), p. 321. For sector F, see Tung (1933), pp. 355–356; Ch'en Meng-chia (1956), pp. 140–143; *KK* (1975.1), pp. 27–46.

[20] *Cheng-chou Erh-li-kang*, p. 38. The inscriptions—one thought to be a practice inscription—were on a bovid humerus and rib (Ch'en Meng-chia [1956], p. 6, plate 15; cf. Li Hsüeh-ch'in [1956], p. 17).

[21] See ch. 4, n. 24.

Two conclusions follow from this uneven distribution. First, we are likely to know more about Shang history in the reign of Wu Ting than in any other period. Second, comparisons between activity in any two periods must always take into account the fact that the size of the inscription sample varies by period; one inscription from period II, for example, may carry the same relative weight as twelve from period I.

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5.4 *The Problem of Authenticity*

The carving of forged inscriptions, first on new bones and then on old, began as soon as dealers recognized that collectors would pay by the graph.[25] The high prices offered were a powerful incentive to embellish blank bone fragments—which constituted about half the oracle bones found at Hsiao-t'un[26]—or to supplement those already inscribed with genuine inscriptions.[27] Fakes were produced in large numbers.[28] In the view of Noel

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[22] These figures are crude in the extreme, particularly because the collections considered do not all treat the RFG inscriptions in the same manner. Nevertheless, the 35,208 fragments counted in table 31 represent about 74 percent of the fragments published; it is assumed, therefore, that the distribution is approximately correct.

[23] Cf. Lefeuvre (1975), p. 16.

[24] See the entries on fragments per year in table 31.

[25] In the period when graphs were despised, the ancient bones sold for six cash for 0.59 kilograms; by the autumn of 1899, curio dealers were asking one *chin* 金 a graph, and rich collectors were paying two and one-half *liang* 兩 of silver per graph; Lo Chen-yü paid nineteen silver dollars for the largest *Ching-hua* fragment (Lefeuvre [1975], pp. 16, 18–19, 40, n. 1). The Wei-hsien 濰縣 dealers were making fakes from 1902 or 1903 on (ibid., p. 24, n. 1). See too Creel (1938), p. 2; Hu Hou-hsüan (1955), pp. 15–22; Chang Ping-ch'üan (1967), pp. 834–835.

[26] For the proportion of blank to inscribed bones, see appendix 3, n. 5. Already provided with hollows, burn marks, and *pu* cracks, these blank bones were ideally suited to the forger's knife (cf. Tung [1929b], p. 212).

[27] The oracle bones reproduced as *Pa-li* 6–8, 10–12 (D) all bear fake and genuine inscriptions side-by-side (cf. n. 48), though Jao's drawings do not reproduce the fake graphs. Fake and genuine inscriptions are also juxtaposed on *K'u-fang* 203, 983, 1598, 1604, 1619, and 1624 (all drawings) (Chin Hsiang-heng [1962], pp. 189–191; Li Yen [1970], p. 283, plate 14) and *Ch'i-chi* W5 (see Britton's comment by the drawing). For forgeries inscribed on genuine bone, originally blank, see *Ch'i-chi* P76; P77; *K'u-fang* 2; 2175 (all drawings) (Britton [1937a], facing p. 1).

[28] "If one goes out to buy these bones he may

Barnard, "With only a small supply of inscribed bones and plastrons available before the large-scale diggings later commenced and as not a great deal was known about the script or its contents, there existed," as Creel had noted, "a veritable 'faker's paradise.'" And he has made the further point that "spurious inscriptions in genuine bone can be comparatively easily incised and made to appear quite authentic; when rubbings are taken from them the deception may be hidden altogether."[29]

Great caution is in order. But, for the following reasons, the problem of forged inscriptions need not prove insurmountable.[30] First, approximately 13,000 fragments published in *Chia-pien* and *Yi-pien* (some of which reappear in combined form in *Chui-ho* and *Ping-pien*) were excavated by the Academia Sinica at Hsiao-t'un between 1928 and 1937.[31] They represent a corpus of authentic inscriptions against which others may be judged.[32] Further, as our knowledge of such factors as style, calligraphy, idioms, grammar, engraving and erasing procedures, incised grooves, and inscription placement has developed, it has become increasingly hard for the early fakes, with their inverted, misplaced graphs and gibberish inscriptions, fabricated at a time when the knowledge of both forgers and scholars was rudimentary, to escape detection.[33] Authenticating criteria do exist.[34] And these

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encounter a hundred forgeries for every genuine piece. . . . I have seen collections of such bones, bought for many hundreds of dollars, not one of which was genuine" (Creel [1935], p. 182). On the general prevalence of fakes at the time, with references to clandestine digs, nocturnal auctions, etc., see too Karlbeck (1957), pp. 174–192. Large numbers of fakes were still on the market in Hongkong in 1946 to 1952 (Li Yen [1966], p. 3). See too n. 35.

[29] Barnard (1968), p. 114, n. 15 (cf. Creel [1938], pp. 2–3); Barnard (1960a), p. 481. Barnard continues ([1960a], p. 482) that he is not attempting "to cast aspersions on the general corpus of unattested inscriptions; we may assume that a considerable proportion are quite acceptable." See too Barnard's comments quoted in n. 34.

[30] The prevalence of fakes, many of them crude, in the period shortly after the inscriptions caught the attention of scholars, encouraged conservatives like Chang T'ai-yen 章太炎 (Ping-lin 炳麟, d. 1936) who argued that all the inscriptions were fakes. (Uno Tetsuto 宇野哲人 [1875–1974], Shima Kunio's teacher, also thought they were spurious [S608].) Chang's arguments are notable mainly for their stubbornness; they fall into four main categories: (1) the early collectors were untrustworthy; (2) classical texts make no mention of inscriptions on shell (cf. ch. 2, n. 155); (3) shells could not have lasted so long undecayed [the discovery of numerous skeletons from Yang-shao sites invalidates this argument; the generally neutral pH of the soil around An-yang (Thorp [1936], p. 417, fig. 14) helps explain the preservation of bones, which are well preserved in basic soils with neutral or alkaline soil water (Goodyear [1971], p. 147)]; (4) the inscriptions (which he at one point regarded as Northern Sung forgeries) were easy to fake (cited by Tung [1965], pp. 56–60). Such skepticism still influenced Marcel Granet, who could write in 1929 (the date of the French edition of his book) that "it would perhaps be an abuse of scepticism to refuse to trust in such labours as the learned M. Lo Chen-yu has consecrated to the bones, which he has, no doubt, good reason to declare authentic" (Granet [1958], p. 59). It is clear from the context that Granet felt the "good reason" to be partly commercial (cf. V. K. Ting [1931], pp. 288–289).

[31] For the number of fragments, see appendix 3, n. 2.

[32] In a few cases, I have been unable to determine the pit provenance of certain *Chia-pien* inscriptions (see ch. 4, n. 182). Until reports of their excavation are published, these inscriptions should not be regarded as fully attested.

[33] Yetts (1954), p. xxi, notes some of the anachronisms, including the use of small circles as punctuation marks, which caused Chalfant and his colleagues to assign a post-Shang date to the oracle bones. For one such spurious inscription, complete with the small circles, see *K'u-fang* 2175 (D) (cf. Britton [1935], p. 21).

[34] For an introduction to authenticating criteria, see White (1945), pp. 75, 77; Yen Yi-p'ing

criteria have been used to identify a significant number of fakes in those collections which were made in the early years of the twentieth century, when the collector's passion outran his expertise.[35]

(1967), pp. 2–6. Chou Hung-hsiang (1967/68) and (1970) has adumbrated some additional technical considerations that may, in the future, be employed in detecting fakes. For one reason why period V inscriptions are less likely to be faked, see Britton's remarks, quoted in ch. 2, n. 102. Noel Barnard's "principle of constancy of character structures" is rarely useful for assessing the authenticity of oracle-bone inscriptions. He describes the principle thus: "In each of the several thousands of fully attested inscriptions I have studied it was observed that repeated characters, or elements of characters, *in any one document*, were always written on the same structural principles—numbers of strokes, position and intrinsic features of stroke combinations, always accorded in each occurrence of the same character written by the same writer" ([1958], p. 37; my italics). In authentic inscriptions, in short, "structures do not vary although shape differences are to be noted" ([1959a], p. 25). Barnard's qualification of the principle, however—"additions, omissions, or interchanges of elements in repeated characters . . . have nothing to do with inconstancy . . . but are regarded as a perfectly normal mishap in writing" (Barnard [1973], p. 28; cf. p. 26, n. 8)—excludes from consideration most of the epigraphic variations found in the bone inscriptions upon which his critics, frequently confusing shape with structure, have seized with such delight (e.g., Li Yen [1967]; Cheng Te-k'un [1971]; for his spirited defense, see Barnard [1965], pp. 408–424; [1973], pp. 23–28). Barnard himself has noted, in fact, that "amongst unattested oracle bone texts about 20 cases of slight inconstancy were found in a total of some 20,000 studied"; and in all but two of these "it was merely a matter of one or two strokes omitted" ([1959a], pp. 28–29). It is not this consideration, however, that renders the principle of character constancy of little use—Barnard's 20,000 fragments, after all, may have been authentic. The more serious problem is that the phrase "in any one document" must have such restricted meaning. It does not necessarily refer to the same scapula or plastron, for the inscriptions found on a single bone or shell were not necessarily written at the same time (e.g., *Ping-pien* 1; on this point, see ch. 3, n. 113); if not written at the same time, inconstancy can easily be explained in terms of a different engraver's hand; it has no bearing on authenticity. Many of the counterexamples raised by Li Yen (1967), for example, can be dismissed as not coming from the same document. The only reasonable procedure is to assume that "any one document" will usually mean a single preface and charge, or, if appropriate, the two prefaces and charges forming part of a charge pair (sec. 2.5). But if only single charges are considered, there will generally be no repetition of characters by which character constancy may be tested (Barnard [1973], p. 27, n. 10, makes the same point). Paired charges do repeat many of the characters, and here the principle does appear to work, though certain curious exceptions may weaken its usefulness. It is clear, for example, that (a) and (b) are epigraphic variants of the same graph and that the structure of the hand element is significantly different. The fact that both forms appear in the same attested document, that is, in the same pair of inscriptions (*Ping-pien* 134.5–6 [S98.1]; *Yi-pien* 8209 [S98.2]), violates Barnard's principle. But the violation clearly accords with some Shang principle; that is, on these two plastrons, form *a* appears in the right-hand positive charge, form *b* in the left-hand negative charge—though this distinction was not always observed on other attested plastrons (on *Ping-pien* 269.4–5, for example, form *b* was used for both the positive and negative charges). A similar violation of Barnard's principle, but with some evident Shang rationale, may be found in the case of (a) and (b) ; form *a* is found on the right side of the shell (*Ping-pien* 269.1, 3, 5) and form *b* on the left (*Ping-pien* 269.4, 6) (cf. Li Yen [1967], pp. 14–15). For other cases of what may be intentional structural variation, see Serruys (1974), p. 87. In short, the principle of constancy of character structure has limited application for the oracle bones, and when it does apply, it does not do so invariably. It has, so far as I know, been invoked but once—and then only in conjunction with other criteria—in the identification of a forgery (Chin Hsiang-heng [1962a], p. 176).

35. Western collectors generally received a paleographic education as they bought (cf. Yetts [1954], pp. xix–xx; *Yin-hsü*, preface, p. 5). The Reverend Frank Herring Chalfant wrote to L. C. Hopkins in 1910: "My good wife and certain colleagues guy me about the business, and mockingly declare that there is a bone-factory in Weihsien city! I smile a grim smile, and am unmoved by this raillery." As Yetts (1954), p. xix,

The possibility of skilled fakes must still be recognized.[36] These are likely to be of four types:

1. The forger copied an authentic inscription.[37] If the copy is accurate, the bone, and, more probably, its rubbing, may well escape detection. If so, no new, spurious information has contaminated the knowledge we gain from the inscriptions; judgments about the frequency of a certain divination topic may be affected, but such judgments, as already indicated (sec. 5.3.1), are tentative at best.

2. The forger decided to create a new inscription. In that case, we may be dealing with a *hapax legomenon*, which can readily be identified as such from the pages of Shima's *Inkyo bokuji sōrui* (sec. 3.3.2). Singularity is by no means a sign of forgery;[38] there are hundreds of such unique inscriptions or graphs recorded in Shima's pages, many from attested collections. Generally speaking, no major conclusions should be drawn from any inscription whose content exists in only the one exemplar and which is from a collection whose pieces were excavated nonscientifically. The danger that the historian will be misled in such cases is slight. First, because sound historical method would preclude giving any great weight to a single inscription; if a topic were important to the Shang they presumably divined about it frequently. Second, because it is frequently impossible to determine the

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concludes, "Their words in jest were only too true. Chalfant was being defrauded on a large scale. One less trustful might have taken warning from the city's notoriety for the faking of antiques." A total of 122 (7 percent) of the 1,687 fragments collected between 1904 and 1908 (?) (Tung [1965], p. 61) and published in the Couling-Chalfant (*K'u-fang*) collection in 1935 are considered to be whole or partial fakes; they are listed, together with 4 more suspect pieces, by Ch'en Meng-chia (1956), pp. 652–653 (cf. Jung Keng [1947], pp. 19–20). As Ch'en notes, 114 of these 122 fragments were bovid bone, which the forger presumably found easier to carve than shell. James M. Menzies, who started to collect inscriptions in 1914 (*Yin-hsü*, preface, p. 1), probably bought more fakes than anybody else (he purchased the spuriously inscribed deer antler referred to in ch. 1, n. 21), but eventually became a discriminating connoisseur (Tung [1965], p. 61; Chang Ping-ch'üan [1967], p. 834; cf. Lefeuvre [1975], p. 56). The R. H. Lowie Museum of Anthropology at the University of California, Berkeley, contains three egregious fakes on bone (9.11970-2) that were evidently designed for the foreign market; only fifteen of the estimated one hundred fragments in the Britton collection in Columbia University's East Asiatic Library are thought to be genuine (Li Yen [1970], p. 320); the Musée Cernuschi contains at least four fakes (6093, 7232, 7630, 7691); there is a fake genealogical bone inscription (*K'u-fang* 1989 [D]) in the British Museum (Watson [1963], pp. 38–39; Yen Yi-p'ing [1967] p.5). Collections published by Chinese and Japanese scholars appear to contain few fakes; steeped in paleographic expertise, they were presumably able to exclude most fakes before publication. Among the fakes which have been identified in the early collections are *Kikkō* 2.28.12; 2.29.12; 2.29.16; *T'ieh-yün* 57.1; 84.1; 130.1; 254.1; *Yeh-ch'u* 26.1; 37.6; 37.8; *Yin-hsü* 758 (D) (Tung [1953], p. 378; Ch'en Meng-chia [1956], p. 49; Tung [1965], p. 61, also finds *T'ieh-yün* 256.1 a fake, but he appears to misread the last two graphs).

[36] For the extensive career of one master forger, Lan Pao-kuang 藍葆光, who studied and copied from the works of Liu E and Lo Chen-yü, but without grasping the sense of the graphs or sentences he was forging, see Tung (1965), p. 60.

[37] Lan Pao-kuang (n. 36) advanced to the point where he would expertly copy whole fragments, a form, as Tung notes (1965, p. 60), of "reprinting."

[38] For a classic case, see the disagreement between Britton and Menzies over fourteen fragments in the Fogg Art Museum at Harvard. As Britton concluded, "The eccentric features simply raise the familiar puzzle, whether you have (1) a valuable rarity, or (2) a forgery" (cited by Chou Hung-hsiang [1976], p. 21).

meaning of many a *hapax legomenon* in the inscription record; only when a graph or formula is repeated in a variety of contexts may we seize the meaning with confidence.[39]

3. The forger mass-produced a new inscription, thus avoiding the caveat of singularity and lulling the historian, who finds safety in numbers, into a false sense of security. It is wise to bear this possibility in mind.[40] Whenever we find a formula repeated in a series of inscriptions which, from the history of the various collections in which the formula appears, we have reason to think may have come into circulation about the same time,[41] and whenever we find that this formula never appears in attested inscriptions from *Chia-pien* or *Yi-pien* or from their derivative collections, *Chui-ho* and *Ping-pien*, we should at least be on our guard.[42]

4. The forger decided to vary what he knew to be a genuine formula. This variation should be treated with the cautions laid down in paragraph 2.

5.4.1 *Degrees of Reliability*

In summary, it appears that the flagrant fakes have been identified. Skillful fakes undoubtedly still lurk in the pages of published collections.[43] But by relying as extensively as possible on the inscriptions found in *Chia-pien* and *Yi-pien* and their derivatives, *Chui-ho* and *Ping-pien*, and on those inscriptions which occur repeatedly in collections of widely differing provenance, the historian can greatly minimize the risk of being deceived by forgeries. No forger is likely to have produced an inscription that will, by itself, significantly distort our understanding of the Shang. With these considerations in mind, I propose that the following scale be used for assessing the reliability of individual oracle bones.

1. Attested: applied to bone and shell fragments excavated under scientific conditions and whose authenticity as Shang materials is unquestioned. The *Chia-pien*, *Chui-ho*, *Ping-pien*, and *Yi-pien* inscriptions, together with the 1971 and 1973 finds, may be labeled attested.[44] A fragment from a nonattested collection may attain attested status if it can be

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[39] Tung (1951c), pp. 6–7, for example, neglected these considerations when he based his argument that the Shang calendar year was $365\frac{1}{4}$ days long on one inscription (*Yi-pien* 15 [S467.2]); the inscription is genuine but its meaning uncertain.

[40] The Musée Guimet, for example, possesses more than a dozen fake inscribed scapula fragments which, from the similarity of their content and calligraphy, were all produced by the same modern atelier. The Metropolitan Museum of Art has at least one fake (67.43.16) that must have come from this same source. And I am informed by Christian Deydier that more inscriptions of this same type are in the British Library.

[41] For the origin of the various collections, see ch. 3, n. 4.

[42] For example, since none are attested, the three inscriptions at S367.1 might all be fakes, with two copied from an original forgery (though, in this case, nothing about the rubbings gives ground for suspicion). The inscriptions at S356.2–3 provide an interesting case where three early, nonattested occurrences are vindicated by a later, attested one (*Chui-ho* 224, back).

[43] Li Hsüeh-ch'in (1957), p. 123, for example, judges *Chin-chang* 481 (D), relied on by Ch'en Meng-chia (1956), to be spurious; Chin Hsiang-heng (1962a) does the same for *K'u-fang* 1506 (D).

[44] For the 1971 and 1973 finds, see Kuo Mo-jo (1972); *KK* (1975.1), pp. 27–46. On the *Chia-pien* finds, see n. 32.

rejoined, without doubt, to an attested fragment (ideally, the attested fragment should have been excavated after the nonattested fragment was published, but given the relatively late publication date of many privately collected inscriptions, that criterion is hard to satisfy).[45] On similar grounds, there is a strong presumption that nonattested inscriptions are also genuine when on the basis of crack numbers, *kan-chih* date, content, and style, they appear to belong to the same set, or at least refer to the same event, as an attested inscription (excavated, if possible, after the publication of the inscriptions in question).[46]

2. Acceptable: applied to inscriptions not excavated by archaeologists, but whose authenticity, on the basis of the criteria suggested in sec. 5.4, there is no reason to doubt. The bulk of the inscriptions published fall into this category, but no inscription should be labeled acceptable without explicit review.

3. Uncertain: applied to inscriptions which are anomalous in any of the ways described in sec. 5.4. Uncertain does not necessarily mean inauthentic, but it introduces a justified note of caution.

4. Spurious: applied to inscriptions which for any of the reasons described above are thought to be forgeries.

Attention to these categories will encourage historians to assess the authenticity of their sources. So far as possible, conclusions should be based on attested inscriptions, and it is for this reason that I list attested inscriptions before nonattested in the footnotes of this book.

The recognition of previously unidentified fakes, which I have not entered into here, is not readily reduced to a few simple rules. The basic issue, as with authentication in any field, is: to what extent does the style, placement, vocabulary, and so on of a disputed inscription accord with or differ from one's educated expectations? Figure 29 reproduces a series of fake inscriptions, easily recognizable because they are untranslatable; that is, they violate routine formulas, present nonsense graphs, or juxtapose the graphs in ways which make no sense and have no Shang models. But historians who wish to detect more subtle forgeries for themselves will learn to do so primarily by reading the relevant scholarship,[47] by studying the large number of fakes that have been identified, and by growing attuned to the patterns and qualities of genuine inscriptions. Even then, they will rarely be in a position to identify forgeries unless they actually work with the bones and shells.

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[45] *K'u-fang* 1661 (D) may be joined with *Chia-pien* 297, forming *Chui-ho* 328 (S166.4; =*Chia-t'u* 16); *Ts'ui-pien* 425 may be joined with *Chia-pien* 264, *Ching-chin* 1266 with *Ping-pien* 24, etc. For other authenticating cases of this sort, see *Chui-hsin* 14; 15; 27; 70; 104; 107; see too n. 65. Numerous factors involving bone thickness, fissure marks, and provenance must be considered before a rejoining may be accepted as correct (see sec. 5.7).

[46] For example, there is little doubt that *Ts'ui-pien* 1108; 1109; *Hsü-pien* 3.11.3; and *Hsü-ts'un* 1.624 (all S110.2), all from period I, are genuine inscriptions, for they are associated by their cyclical date and wording with such attested inscriptions as *Ping-pien* 12.1–2 (sec. 3.7); see ch. 3, n. 108. Similarly, *Pu-tz'u* 632 refers to the same lunar eclipse as *Chia-t'u* 55 (both S162.1).

[47] For a general introduction to the problem of forged inscriptions, see Chang Tsung-tung (1970), pp. 30–33. For particular cases, see, for example, Chin Hsiang-heng (1962a), a particularly instructive case study; Yen Yi-p'ing (1967); (1974); Hu Hou-hsüan (1973a). See too n. 34.

Authentication, in short, is a matter of connoisseurship and can best be practiced by handling the actual objects.[48]

5.5 *Methods of Reproduction*

No scholar is in a position to examine every bone and shell cited. Many are scattered over the globe; others have been lost or at least have been lost track of.[49] For most research, therefore, the scholar will rely upon three kinds of reproduction: rubbings, drawings, and photographs.[50] Usually, the scholar working with a particular inscription must be content with one or, at best, two forms of reproduction.[51]

Rubbings are generally more reliable than drawings, and more reliable, in some respects, than photographs, though the way in which rubbings were made and printed

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[48] Forgers frequently carved their inscriptions on genuine Shang bones (see n. 27). Collagen dating (which would involve destroying the bone) or similar scientific tests might determine the date of the bone, but could tell us nothing of the date of the inscription. On occasion, examination with a loupe or binocular microscope (I have found approximately 16x the most effective magnification) will reveal the fresh traces left by a modern knife, the lack of impacted soil in the groove, and the general cleanness and neatness of the grooves. (For an introductory study of the Shang grooves, see Chou Hung-hsiang [1967/68]; cf. Chou [1976], p. 11.) But the absence of such features is no proof of authenticity. The fake inscriptions in the Musée Guimet, for example (see n. 40) look genuine so far as their incisions are concerned. The bones published as *Pa-li* 6–8, 10–12 (D) are particularly instructive in this regard, for the same scapula fragments contain fake and genuine inscriptions in close proximity; while it is generally true that the fake grooves appear cleaner and newer and the genuine grooves older and dirtier (as in *Pa-li* 11), these correlations are frequently relative and subjective. They cannot always be used as authenticating criteria; other criteria, such as writing style and the sense or nonsense of the inscription must still be considered. See too Barnard's comments cited at the start of sec. 5.4.

[49] As in the case of *Ming-hou;* we have Menzies' rubbings, but the whereabouts of the 2,812 fragments is unknown (*Ming-hou* preface, p. 3). For other cases in which the original oracle bones have now been lost, see Lefeuvre (1975), pp. 27–28, n. 1, pp. 41, 49, n. 3. For notices about fragments disappearing and reappearing in collections in the United States, see Chou Hung-hsiang (1976), pp. 16, 18, 22, 23.

[50] The present corpus consists of about 43 collections of rubbings (approximately 38,000 pieces), about 20 collections of drawings (12,654 pieces), and various small collections of photographs (probably less than 1,000 pieces). These estimates are based on Tung (1953), pp. 375–378, adding *Menzies*, *Ming-hou*, *US*, and *White.* A rubbing reproduces the inscription mechanically; but unlike printing, where the ink lies between the object and the paper and a negative image is reproduced, the paper lies between the object and the ink and a positive image is reproduced. The term "squeeze" is apparently preferred in Western classical scholarship. For the general technique, see Woodhead (1967), pp. 78–83; for details about making oracle-bone rubbings, see Chou Hung-hsiang (1976), pp. 5, 18, n. 15. It may be remarked that, as modern rubbings attest, the carved scapulas and plastrons were potential "printing blocks." References to smearing the plastrons with ink do appear in Chou texts (ch. 2, n. 155), but there is no evidence that the Shang reproduced copies of their divinations in this way. The problem of why the graphs were carved will be considered in *Studies.*

[51] For an example of the three types of reproduction, consider *Chia-pien* 2122. A photograph of the actual plastron is given in Tung (1931), plastron 4; (1948a), no. 6; and *T'ung-tsuan*, "pieh" 2, IA; *Chia-pien* 2122 and *Ch'ia-t'u* 80 are rubbings of the plastron; a drawing is found in Tung (1945), pt. 2, ch. 5, table 3, p. 10b. For a rubbing, photograph, and drawing of the same fragment (*USS* 651) juxtaposed, see Chou Hung-hsiang (1976), p. 5.

may affect their usefulness.[52] Photographs have one clear advantage over rubbings in their ability to reproduce graphs that were brush-written but not inscribed;[53] their accuracy, if unretouched, and the speed with which they may be made also recommend them. Photographs, nevertheless, have their drawbacks; the graphs frequently offer insufficient contrast with the bone surface to be photographed with success; it is not always possible to bring all the curved surface of a bone into sharp focus; erasures and corrections, which may appear in rubbings, do not photograph well.[54] Drawings, in particular, must be treated with caution, especially when the draftsman was unfamiliar with the content of the inscriptions.[55] Among other factors, graphs may be wrongly drawn, cracks, crack

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[52] Not infrequently a rubbing may have been reproduced in two or more collections, and one rubbing may be clearer than the other; e.g., *Wai-pien* 453 is a far clearer rubbing than *Hsü-ts'un* 1.632. (For an error caused by an early unclear rubbing of *Chia-pien* 1289, see Tung [1952], p. 284). *T'ieh-hsin* reprints the best rubbings made of the *T'ieh-yün* pieces; the quality of reproduction in the original edition was not always good. Similarly, *Chi-ch'eng 1* initiates a major attempt to reproduce mint rubbings from various collections and to identify duplicates; until an index is provided, however, it will be hard to use. (For a useful review of *T'ieh-hsin* and *Chi-ch'eng 1* see Mickel [1976b].) Shima's *Sōrui* (sec. 3.3.2) lists some examples of duplicate rubbings, but a comprehensive catalog is needed. The work of Mickel (1974), (1974a), (1976a), and (1977) helps satisfy this need. With regard to the quality of editions, Jung Keng (1947), p. 22, notes, for example, that the first collotype edition of *Shih-yi* was not at all clear and that the lithographic version was still worse. For a detailed discussion of the various methods of printing (collotype, metal plate, rubber plate, photolithography, etc.) and types of rubbing ("glossy dark" or "cicada wing"), and examples of each, see Ch'en Meng-chia (1956), p. 48; Tung (1958), pp. 918–920; Chou Hung-hsiang (1976), pp. 2–7, 18. The quality of the various editions of rubbing collections will be fully treated in Lefeuvre's forthcoming work (see ch. 3, n. 4, above). It is occasionally necessary to beware rubbings that have been spuriously improved to produce graphs that are neater and clearer than those on the original oracle bone; see, for example, the refurbished rubbings of Wang Tzu-yü (1933); see too the critical comments of Sun Hai-po (1937) on the way the *Fu-yin* rubbings were "improved."

[53] See ch. 2, n. 96.

[54] On the difficulties involved, see, for example, Britton (1935), pp. 1, 13; Li Yen (1970); Chou Hung-hsiang (1976), pp. 3, 5, 22. The virtues of rubbings and photographs may readily be compared by consulting *Hai-wai*, pt. 1, 1–12, which gives both; see too Chou Hung-hsiang (1976), pp. 2–7. It should be noted that *pu* cracks, especially when not engraved (sec. 2.10), are frequently too thin or subtle to appear in a rubbing (e.g., the cracks in *Menzies* 2455; 2528; 2664) but are reproduced well by photographs; on this point, cf. Chang Ping-ch'üan (1956), p. 241.

[55] *Ch'i-chi*, *Chin-chang*, *Hsü-ts'un*, pt. 2, *Nan-pei*, *Ning-hu*, and *Yin-hsü* reproduce only drawings of inscriptions. Menzies' drawings in *Yin-hsü* are not of high quality (Jung Keng [1947], p. 21) and those of Chalfant (in *Ch'i-chi*, *Chin-chang*, and *K'u-fang*) are thought less good (ibid., pp. 19, 20); for examples of Chalfant's errors, see Chou Hung-hsiang (1976), pp. 2, 3. On the way Chalfant's hand improved with practice, see *Ch'i-chi*, preface, p. 1. Hu Hou-hsüan's copies in *Nan-pei* and *Ning-hu* contain many errors (*Shih-to*, pt. 2, preface, p. 3a; see too Tung and Chin [1961], p. 72). One of the master draftsmen was Tung Tso-pin; see, for example, his numerous drawings in *Yin-li-p'u* (Tung [1945]); for his drawings of *Yi-pien* 107–643, see *Chung-kuo wen-tzu*, nos. 2–3, 5–13, 16–17 (1961–1965). In all these cases, it is salutary to bear in mind a comment by Creel ([1938], p. 108): "It has been proved time after time that when one tries to draw these [oracle-bone] characters in facsimile it is virtually impossible to prevent his mental preconceptions from influencing the copy, try as he will to make nothing more nor less than a simple reproduction." For the way different drawing styles may influence judgments about Shang calligraphy, compare Hsü Chin-hsiung's drawings (*Menzies*, plates 265–281) with those of Yen Yi-p'ing (*Chui-hsin* 566–594) for the same pieces. Note in this regard, however, that rubbings are not infallible either; thickness of character stroke, for example, may vary with "the kind of ink and paper used and the pressure applied" by the rubbing maker (Chou Hung-hsiang [1973], p. 181).

numbers, and crack notations omitted, and failure to reproduce plastron fissures may handicap attempts at reconstruction. The fact that an inscription is a hand copy should always be noted in the gloss or citation (done in this book with the letter D). The current trend to reproduce rubbings (or photographs) of collections which had formerly been reproduced only as drawings is greatly welcomed.[56]

Certain caveats should be applied to all forms of reproduction: one cannot always tell if the inscription is on bone or shell, one cannot tell its thickness (an important consideration in rejoining fragments; sec. 5.7), one cannot tell what hollow forms or even graphs may have been on the back, one cannot even be sure that the shape of the entire fragment has been reproduced.[57] It goes without saying that scholars should work with the actual bones or shells when possible.[58]

5.6 *Methods of Transcription*

The translation by transcription of oracle bone graphs into modern Chinese graphs introduces (as already suggested, sec. 3.5) the risk of distortion. It is a classic case of *traduttore, traditore*, all the more insidious because likely to go unremarked.[59] Ideally, every inscription quoted should be presented as a rubbing and be accompanied by a tracing of the Shang characters, followed by a transcription into modern characters and then by a translation into a modern language. Such a method, in a work which cites several hundred inscriptions, would be impossibly cumbersome. Some scholars have chosen to write all the inscriptions they discuss in Shang form alone.[60] I have followed their purist example by providing in the margin Shima's *chia-ku* transcriptions, taken from *Sōrui* (sec. 3.3.2), for some of the inscriptions translated in this book. For the scholar, steeped in *chia-ku-wen*, such transcriptions will generally suffice, at least as transcriptions (see the next paragraph).

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[56] E.g., *Ming-hou*; *T'ai-ta 2; US;* Chin Hsiang-heng (1973); Hu Hou-hsüan (1973a). Photographs of 68 pieces originally reproduced as drawings in *Ch'i-chi*, W, have been published in *Hai-wai*.

[57] The top of *Yi-ts'un* 888, for example, was cut off; Hu Hou-hsüan (1964), p. 138 and fig. 3, restores it. Other rubbings were cut in two; e.g., *Fu-yin*, "Ti" 207 and "Wen" 40 (see the complete fragment at *Hsü-pien* 1.45.3 or *Yi-ts'un* 914 [Hu, op. cit., p. 156]); *Ch'ien-pien* 1.14.7 and 1.16.3 (rejoined at *Cho-ts'un* 11). Even the *Yi-pien* rubbings do not always reproduce the whole fragment; e.g., the upper left quadrant of fragment F of *Ping-pien* 395 is not reproduced in *Yi-pien* 3063. In his discussion of the oblong tablets into which oracle bones were occasionally sawn (sec. 1.3.1), Liu Yuan-lin (1969), pp. 237–243, notes that the existence of such tablets had long been unrecognized because early books of rubbings did not always reproduce the full shape of the bone or shell fragment.

[58] It is probable that my discussion of *Ping-pien* 12–21 (sec. 3.7) would require revisions if I had the opportunity to examine the plastrons themselves. For examples of the dangers involved when the actual oracle bone is not studied, see Yen Yi-p'ing (1961), pp. 516–520.

[59] On some of the problems involved, see Serruys (1974), pp. 15–19, and, for a particularly instructive case of erroneous transcription, p. 101, n. 23.

[60] E.g., Shima (1958); Chang Tsung-tung (1970); Takashima (1973).

But the familiar, modern forms are needed if the inscriptions and the scholarship about them are to be read by nonspecialists. As a general rule, I would suggest that the modern graph form may be used when inscriptions are cited for purposes of illustration and no issue involving the identity of the word or the form of the graph is being raised. When the word or the form of the graph is in question, it is essential that the *chia-ku* graph itself be provided and that the modern transcription, if one is used (as it is usually convenient to do in the case of names, for example), preserve contact with the ancient epigraphy by conforming to the structure of the Shang graph, rather than merely providing a modern character equivalent.[61] If this is not done, important clues may be lost in the translation. For graphs where no modern equivalent can be proposed, the Shang form must be used. This means that some inscriptions may be presented in mongrel style, eight parts modern, one part modified modern, one part ancient. This is inconsistent, but it is the most efficient approach for a work of history, and there is ample precedent.

All transcriptions are to be taken as mere representations of the Shang document. They are smooth, and hence potentially false, depictions of what may have been a wild and rugged epigraphic landscape.[62] All study of the inscriptions must finally be based on the original graphs in their original context. It must be based on the rubbings and, if possible, on the original scapulas and plastrons. As a matter of convenience, I have given, when it is useful to do so, the *Sōrui* reference after each inscription cited; this will enable the reader without access to the rubbing collections to see what the Shang graphs looked like in each case. But Shima presents a standardized form of oracle-bone script; he has not always copied the inscriptions accurately or consistently; and he gives no indication of placement and direction on the bone. His entries too must be treated as representations.

Oracle-bone scholars use certain standard conventions in their transcriptions. The symbol ⧄ is used when we cannot tell if a character is missing, or, if so, how many characters have been lost. The symbol □ is used to represent one missing character.[63] Parentheses indicate that meaning has been supplied. Square brackets indicate that the graphs are not present on the oracle bone we have, but are thought to have been present originally and have been restored. The symbols ⌟ or ⌞, inserted in some modern transcriptions (such as *Ping-pien k'ao-shih*), indicate that the text columns were written downward and to the left or downward and to the right, respectively.

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[61] This means, for example, that (S477.3) should be transcribed as , not as *tso* 乍 or 作, or even as . By contrast, the transcription of (figs. 12 and 13) as *mien* 娩 may express the presumed meaning; it does not reproduce the structural components of the original graph. The importance of such faithful reproduction is convincingly argued by Barnard, e.g., (1958), p. 15, n. 4; (1959a), p. 8.

[62] To cite but two examples: the transcription of (S12.4) as *ssu* 死, rather than *ch'iu* 囚, or of (S303.1) as *huo* 禍 involves much scholarship (provided, in these cases, by *CKWT*, pp. 93–95, 1453–1471; on , see sec. 3.5.2) and conclusions that may be debatable. Even the transcription of as *tsu* 祖 or as *pi* 妣 (cf. ch. 3, n. 47, n. 51) supplies radicals and thus amends the Shang graphs.

[63] E.g., *Chia-pien k'ao-shih*, "Fan-li," p. 9.

well or appear related; impacted dust or dirt may prevent suture lines from appearing in one or more of the rubbings; and rubbings may be of such varying quality that a rejoining may, at first glance, appear out of the question.[70] In addition, it is essential that the rejoiner have a thorough understanding of the morphology of scapulas, plastrons, and carapaces, as well as a firm grasp of the way hollows, cracks, crack numbers, crack notations, and inscriptions were likely to be placed on different sections of bone or shell (secs. 1.5.1; 2.4; 2.6; 2.9.4).[71] Tung himself made some brilliant reconstructions, fascinating examples of epigraphic detective work (for example, fig. 30),[72] but some are speculative, and others he subsequently admitted to be wrong.[73] A fair number of erroneous reconstructions have been published, a few with serious consequences.[74] It goes without saying that further fragments may be added to published rejoinings until the whole plastron or scapula is completed.[75]

In conclusion, the historian should be cautious in using such restorations unless the scholar who reassembled the pieces was able to work with the oracle bones themselves and note, in particular, that thickness, fissure lines, and other physical features matched.[76] And even in those cases, the match can only be thoroughly reliable if an inscription (and preferably a graph or series of graphs) straddles the break between the rejoined fragments.

Certain reconstructions are of the "exploded" variety; that is, they identify and place fragments on the same scapula or plastron, even though the intervening fragments are missing; and they may further supply missing graphs on the basis of context and expectation (for example, fig. 30).[77] Similarly, missing graphs may be supplied for single fragments when part of the inscription has been broken off (as in sec. 3.6.1; fig. 20). In all cases,

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[70] *Ping-pien* 24, *k'ao-shih*, pp. 47–48; Chou Hung-hsiang (1970), pp. 54–56; (1973), p. 180.

[71] On this aspect of reconstruction, see Tung (1945), pt. 2, ch. 5, pp. 19a–21b; ch. 9, p. 45a; Chang Ping-ch'üan (1956), pp. 240, 243; Yen Yi-p'ing (1967), pp. 6–12.

[72] E.g., Tung (1945), pt. 2, ch. 3, p. 32b; ch. 5, pp. 19a–21b; ch. 6, pp. 6b–8a; ch. 7, p. 2a; ch. 9, pp. 54a–58b; ch. 10, pp. 5b–6a. Many, if not all, of these rejoinings are reproduced by *Chui-hsin* 296–348.

[73] Tung (1948b), pp. 186–188; (1952), p. 282.

[74] For references to erroneous reconstructions, see Tung (1945), pt. 2, ch. 7, p. 3b; Yen Yi-p'ing (1954); Li Hsüeh-ch'in (1956), p. 16; Ch'ü Wan-li (1965), pp. 73–74. Chang Ping-ch'üan (1956a), p. 244, joins *Yi-pien* 4169 to *Yi-pien* 2564+3139; but *Yi-pien* 4169 does not appear in *Ping-pien* 477; the original rejoining was apparently rejected. Similarly, Yen Yi-p'ing (1961), 77 and 235, combines *Yi-pien* fragments not found in *Ping-pien*. *Chui-hsin*, ch. 10, passim, challenges ninety-seven rejoinings made by previous scholars; Yen Yi-p'ing's discussions of such points as differing edge angle, wrong reconstruction of the character straddling the break, and differences in writing style are instructive; he also notes wrong rejoinings in the body of the work, as at *Chui-hsin* 22, 90, 246, 266, 314, 337, 470, and 471 (the last two concern the faulty linking of front and back rubbings which do not, in fact, reproduce the front and back of the same oracle bone). Wrong or incomplete reconstructions proved particularly misleading in the attempt to date the lunar eclipse records; for the revised rejoinings, see Tung (1952), pp. 282–286; Chang Ping-ch'üan (1956a), pp. 244–245. These and other eclipse records will be discussed in *Studies*.

[75] For example, *Chui-hsin* 4, 14, 16, etc. supplement some of the *Chia-t'u* rejoinings. As Yen Yi-p'ing notes (*Chui-hsin*, preface, p. 1b), not all the *Yi-pien* rejoinings have yet been made.

[76] Even working with the fragments themselves does not guarantee a correct rejoining. Yen Yi-p'ing (1962 [cf. 1961, 286]) by using rubbings was able to correct the faulty rejoining of *Chia-t'u* 5, which had been based on the fragments.

[77] E.g., Tung (1945), pt. 2, ch. 5, pp. 19a–21b; ch. 6, p. 7b; ch. 7, p. 2a, etc.; *Chui-hsin* 72–75; 331; 363–365; 479; 546, etc.

5.7 *Reconstruction of Inscriptions*

Many of the oracle bones excavated at Hsiao-t'un were already in fragments when they came out of the ground; others were broken later by accident or to be sold separately. Rejoining these fragments, and thus the inscriptions, is a work of vital importance.[64] It permits us to reconstitute whole divination sentences, to place them in the context of adjacent inscriptions, and even, on occasion, in the context of a series of inscriptions. Rejoinings may also serve, as already noted (sec. 5.4.1, par. 1), to authenticate an inscription that was not scientifically excavated.[65] Certain collections are composed entirely of rejoined fragments; and many other joinings have been made on an individual basis.[66] The work of rejoining, which may be likened to an attempt to put together hundreds of separate, yet deceptively similar, jigsaw puzzles from thousands of similar pieces, many of which are missing, some of which have lost their original shape (and some of which may even be rejoined in more than one way),[67] may eventually be speeded up by the application of computer technology.[68]

Tung Tso-pin's tongue-in-cheek claim that if one knows the *kan-chih* date, inscription type, and structure of the bone and shell, reconstruction is "easier than putting a broken mirror together"[69] should remind us that any rejoining, especially if made only on the basis of rubbings, must be treated with caution. The rejoiner needs to be aware of the following pitfalls: rubbings of individual fragments may stretch or shrink to different degrees so that one rubbing will not match another, even though the original fragments do; it may be difficult to fit rubbings together since the curvature of the reconstituted bone or shell will differ from that of the rubbings made from individual fragments; differing pressures and conditions underground may have warped, broken, or discolored fragments from the same piece in different ways so that even the fragments themselves will not fit

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64. On the method of rejoining fragments, see Tung (1945), pt. 2, ch. 5, pp. 22a ff.; ch. 8, pp. 12a–13a; (1954a), p. 120; (1958), pp. 915–918; Chang Ping-ch'üan (1956a), pp. 242–243; Serruys (1974), pp. 15–19. Woodhead (1967), pp. 67–76, is also useful for the Shang scholar. Note that a small part of the rejoiner's work may involve rejoining fragments which were once whole, or rubbings which were subsequently cut in pieces. For example, *T'ieh-yün* 108.1, originally published as one fragment, was subsequently broken in two and published as *Hsü-ts'un* 1.358 and *Shih-to* 2.92 (see *Chui-hsin* 285). For rubbings, see n. 57.

65. See n. 45. The fact that *Ching-chin* 1266 may be joined to *Ping-pien* 24 (see *Ping-pien* 24, *k'ao-shih*, pp. 47–51) suggests either that the excavators of YH127 were careless and the piece was stolen or that the plastron was broken before the Shang put it in the ground. Cf. Yen Yi-p'ing (1973), pp. 2b, 6a, 6b–7a, for this and two similar cases.

66. The major published collections of rejoined pieces are *Cho-ts'un*, *Chui-ho*, *Ho-pien*, and *Ping-pien*; *Chia-t'u* (plates 1–58 at the rear of *Chia-pien k'ao-shih*) contains 221 rejoinings of *Chia-pien* fragments. *Chui-hsin* reproduces by rubbing and drawing many of these rejoinings (with the exception of those involving *Yi-pien* fragments) and many new ones; the preparation of an index would render this useful work more valuable. For a review of *Chui-hsin* see Mickel (1976b). Mickel (1974), (1974a), (1976a) and (1977) provide indexes to the rejoined (and reduplicated) fragments in *Chien-shou*, *Ch'ien-pien*, *Ching-hua*, *Fu-chia*, *Fu-yin*, *Hou-pien*, *Hsü-pien*, *Kikkō*, *Pu-tz'u*, *T'ieh-yi*, *T'ieh-yü*, *T'ieh-yün*, *Ts'un-chen*, *Tung* (1929a), *Yi-ts'un*, and *Yin-hsü* (see table 9).

67. For the correct rearrangement of the fragments wrongly rejoined in *Chia-t'u* 5, see n. 76.

68. Chou Hung-hsiang (1973).

69. Tung (1954a), p. 120.

Shima's *Sōrui* (sec. 3.3.2) is invaluable in giving the inscription patterns for any particular topic; in particular, the regularity of the ritual cycle in periods IIb and V assists the restoration of inscriptions from those periods.[78] Such reconstructions, provided the graphs supplied are always enclosed in square brackets and the reasons for the reconstruction given, when necessary, in a gloss, have an important role to play. Many—such as the restoration of a cyclical day date or diviner's name—are routine, and appear frequently in inscription commentaries. Others may involve far greater scope. Exploded and imaginative reconstructions should be treated with even more caution than that required for those rejoinings in which the fragments are contiguous.[79]

5.8 *Grounds for Cautious Optimism*

The oracle-bone inscriptions, documents of a kind unique in history, provide a vivid, if sporadic, sense of contact with the Chinese Bronze Age. The highly polished scapula fragments, with the look and feel of old carved ivory, may be called beautiful. Sanctified by their great age, eloquent witnesses to a royal religion and belief, they invite reverent handling. Those who spent years in the heroic yet depressing task of shuffling and sorting thousands of oracle-bone fragments, may take a less romantic view of the matter.[80] Nevertheless, the occasional chance to handle an oracle bone of museum quality affords a pleasure, a sense of immediate contact with ancient and holy things, denied to historians working, say, with Sung recensions of Chou or Han documents. The oracle bones were the very bones and shells that the Shang kings and their diviners cracked and prognosticated over three millennia ago.

Like all documents, the inscriptions have their historiographical advantages and disadvantages. The following points may be made in their favor: (1) The divination inscriptions are indisputably old (for the question of forgeries, see sec. 5.4). (2) The original inscriptions, which lend themselves so conveniently to the making of modern rubbings, may be reproduced without the risk of scribal or typographical error; rubbings are copies made from mechanical contact with the originals; they are not copies of copies. (3) The inscriptions were lost for some three thousand years; they have thus reached us undistorted by errors in transmission and unaccompanied by tendentious commentaries (though modern scholars, of course, have not lacked axes to grind in interpreting the inscriptions). (4) They are not epiphenomenal or decorative documents; they are true records of how the Shang king actually conceived of his alternatives. (5) They have been preserved by accident, without any evident intent to influence posterity.[81] The oracle-bone inscriptions, in short, are "hard" documents in the best historiographical sense. This is not to say that they were documents with no interest to serve; if that were so they would not have been recorded. They have their biases, but they are the genuine and contemporary biases of the recorders and not the ideological biases of later transmitters;[82] the texts say what their authors intended they should say. The divination inscriptions have the invaluable quality of *sitz im leben*, immediately apprehended by the recorder and accurately transmitted to us.

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[78] For the ritual cycle see ch. 4, n. 102; appendix 5, sec. 2.

[79] Several of the erroneous reconstructions cited in n. 73 and n. 74 were of this exploded or imaginative variety.

[80] See, e.g., Chang Ping-ch'üan's description of the labors involved in rejoining the *Yi-pien* fragments (*Ping-pien*, preface, p. 1).

On the other hand, there are disadvantages: (1) The oracle-bone inscriptions may have been transmitted accurately, but it is frequently hard, and occasionally impossible, to determine accurately the meaning of what has been transmitted (sec. 3.5). (2) Further, the inscriptions present a narrow view. They deal primarily with ritual and sacrifice and do so in standard forms; they deal exclusively with the concerns of a small elite group; they tell us little, for instance, of economic organization, or of the life of the peasantry. (3) We have only a small sample of the total number of inscriptions that were made during the last eight or nine reigns of a dynasty that supposedly saw some thirty kings on the throne. For these reasons, Tung Tso-pin concluded that the inscriptions were not representative, that they could not be used to understand more than 1 percent of Shang culture, that—and here he was addressing an international symposium—they represented "only the dregs of a civilization, the best parts of which have . . . evaporated and left little trace."[83] And H. G. Creel finds "the state of our knowledge of the Shang period . . . exasperating. We know so much about a few things that it seems intolerable that we know so little about the culture and history as a whole."[84]

Such pessimism is not to be dismissed, but it can be qualified. We may be in the position of somebody attempting to reconstruct classical Greek culture by using the archives of Delphi; clearly our "diviner's eye view" will be narrow and special. But the attempt must be made if we are to have more than an antiquarian's knowledge of the origins of Chinese civilization. And it may be made, I believe, with some optimism. Hsiao-t'un was not Delphi; it was a major, and probably the major, political and religious center of the North China plain.[85] The Shang king was no mere Pythia or priest; he was a powerful theocrat presiding over economic, military, and religious structures of considerable administrative complexity. The inscribed charges and prognostications did not vary in coherence (as they did at Delphi),[86] requiring ambiguous explication by a priest; they were recorded in clear. Finally, most of the divinations deal not with the extraordinary but with the ordinary, not with emergencies but with the routine business of Shang religion and government as it was practiced on a day-to-day basis. Ideally we would like to have far more evidence; but we can make good and full use of what we have.

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[81] Preliminary research, which will be presented in *Studies*, suggests that the oracle bones were not engraved or stored for posterity; they come to us from the cellars and refuse pits of the Shang, not from the temple archives.

[82] The preference for recording only auspicious crack notations and validating verifications has already been noted (secs. 2.6, 2.8).

[83] Tung (1949), pp. 241–242; (1951c), p. 5; (1951d), p. 28. For his more optimistic summary of what the oracle bones can tell us, see Tung (1951); cf. Li Hsüeh-ch'in (1959), p. 22.

[84] Creel (1970), p. 31. Cf. Van Gulik (1961), p. 4: "We find ourselves in approximately the same position as a man who in say the year 5000 would try to reconstruct our present Western civilization while having at his disposal only a collection of tombstones from a number of cemeteries now scattered over Europe."

[85] On the status of Hsiao-t'un, see ch. 2, n. 2.

Initial studies have already been made, in Western languages alone, of such topics as ancestor worship, the role of the Nature powers, conceptions of disease or disaster, kinship organization, succession and descent, the Shang calendar, administrative organization, the genesis of urban forms, public work, and legitimation.[87] Much of what we already know about the Shang, including the fact that the dynasty itself existed, we owe to the oracle-bone inscriptions. Without them we would see the pre-Chou Bronze Age of North China far more dimly than we do.

Pessimism about the contribution that the oracle inscriptions can make has, I believe, been due in large part to the attempt to fit the Shang into the standard framework of a Chinese dynastic history. We cannot write annals of the Shang emperors, biographies of ministers and generals, treatises on economics or water conservancy. It would be folly to believe, barring new and revolutionary discoveries excavated from the soil of China, that we will ever be able to write of the Shang in that way.

Students of Shang history may, and indeed must, attempt to work as political and narrative historians. But they will find the inscriptions more rewarding for what H. Stuart Hughes has called "retrospective cultural anthropology,"[88] an analysis of the cultural condition of a group of people at a certain place and time. The historian of Shang China must constantly attempt to understand the sources *in situ*, as parts of an entire cultural system with its own necessary rationale. The questions must be not only What does the inscription say? but What function did it serve to say it? What did the record keeper think he was doing?

Divination in its own right was a significant aspect of Shang life. To understand the Shang, we must understand both the logic of their divination system and its social function. It is anachronistic, and patronizing, to dismiss Shang pyromancy as mere superstition, evidence that the Shang did not dare make up their minds for themselves.[89] To lament that most of the divination charges are trivial is to misunderstand both the nature of

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[86] Park and Wormell (1956), p. 33.

[87] See, for example, Chang Kwang-chih (1964); (1974); Chou Hung-hsiang (1968); Keightley (1969); (1975); (1975c); Chang Tsung-tung (1970); Chao Lin (1970); (1972); Wheatley (1971); Vandermeersch (1975); Mickel (1976); Nivison (1977). Recent studies in Chinese and Japanese have used the inscriptions to study, for example, Shang agriculture (Yü Hsing-wu [1972]), kinship organization (Chang Kwang-chih [1973]), metallurgy (Yen Yün [1973]), punishments (Hu Hou-hsüan [1973]), sericulture (Hu Hou-hsüan [1972]), technology (Li Shih [1976]), slavery (Hu Hou-hsüan [1976]; Yang and Yang [1977]), and religion (Akatsuka [1977]).

[88] Hughes (1961), p. 9.

[89] This view was common among Chinese scholars; see, e.g., Hu Hou-hsüan (1944a), p. 2a; Tung (1965), p. 117.

Shang culture and the role of the historian.[90] It is for the historian to discover what it was that made these divinations nontrivial to the Shang, who expended so much effort in preparing, cracking, and engraving the scapulas and plastrons; their "triviality" is a clue of great significance if we would cross the cultural gap that separates us from Bronze Age China. Cicero's comments, quoted as the epigraph to this book, should remind us of the major role that divining—or forecasting—plays in our own culture. We all plan for, and seek reassurance about, the future in ways that differ but express the central concerns of our lives. Evans-Pritchard, to cite but one example of the naturalness of divination, found that the poison oracle was "as satisfactory a way of running my home and affairs as any other I know of. Among Azande it is the only satisfactory way of life because it is the only way of life they understand, and it furnishes the only arguments by which they are wholly convinced and silenced." As he concluded, "Magic and oracles are more difficult for us to understand than most other primitive practices and are therefore more profitable a subject for study than customs which invite easy explanations."[91]

It is the primary assumption of this book, and of the studies that will follow, that the divination inscriptions may be used to delineate accurately, though by no means completely, the ethos and world view of the Shang elite. The Shang, like the Azande, believed in the explanatory, rational nature of divination; they knew the world worked this way. Shang pyromancy is thus one of the clues which help us to define the constraining structures of the Shang mind, to characterize and explicate the "culturally standardized unreason"[92] which lay at the heart of Shang culture as it does all others. The great questions of Shang history are not just political or economic: How were taxes collected? What were the sources of Shang power and prosperity? They are also cultural: Who did the Shang think they were? How did they conceive of themselves and their world? What theological and metaphysical assumptions made sense of that world and their role in it? and What significance did these conceptions have for the later development of Chinese values? In the words of Marc Bloch, "in the last analysis it is human consciousness which is the subject-matter of history."[93] In answering for the Shang the human question, Who am I?—or, more accurately in Shang terms, perhaps, Who were, are, and will we be?—scholars may, in small part, help us answer the question for ourselves. These are the questions which touch us directly and deeply, and they are the questions to which the graphs carved on bone and shell some three thousand years ago can still provide responses. To study Shang conceptions of life is to extend our own.[94]

In all this, the role of historiography is fundamental. Painstaking work is needed if we are to see things clearly at a distance of three millennia. Much about the oracle-bone inscriptions is not known or understood, much that we now know will change. I hope, however, that the concerns introduced in this book will assist historians in their attempt to see the Shang as they really were. For it was from their beginnings in the last half of the second millennium B.C. that one of the greatest and most enduring of human cultures arose. The origins of that culture, as we are humans too, concern us all.

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[90] E.g., Soymié (1959), p. 278: the inscriptions "notent les questions, des plus triviales aux plus graves (surtout les triviales) qui intéressaient les rois Yin."

[91] Evans-Pritchard (1937), pp. 270, 313.

[92] See Lévi-Strauss (1969), p. 10; Kluckhohn and Leighton (1970), p. 348.

[93] Bloch (1953), p. 151.

[94] Cf. Winch (1964), esp. pp. 317–322.

APPENDIX 1

Identification of the Inscribed Turtle Shells of Shang

by James F. Berry

1. *Introduction*

There have been a number of limited attempts at identifying the turtle remains from the archaeological site at An-yang. Ping (1930) described an extinct terrestrial tortoise, *Testudo anyangensis*, based on an uninscribed shell from An-yang. Lindholm (1931) concluded that the turtle examined by Ping was, in fact, an aquatic turtle closely related to the living turtle *Ocadia sinensis*, and he renamed the turtle *Pseudocadia anyangensis*. Pope (1935), in his monograph on the reptiles of China, accepted Lindholm's redescription and included a lengthy discussion of the presumably extinct *Pseudocadia*.

In 1937 more of the An-yang turtle remains, including the specimen described as *Pseudocadia anyangensis*, were examined by Bien. He concluded that the differences between *Pseudocadia* and the living form *Ocadia sinensis* were not sufficient to justify the recognition of two species, and he placed the name *Pseudocadia anyangensis* in synonymy with *Ocadia sinensis*. In addition, Bien was first to recognize the remains of another living species, *Chinemys* (=*Geoclemmys*) *reevesi*, at the An-yang site. H. W. Wu (1943) identified the largest plastron (*Ping-pien* 184) as a third species, the tortoise *Testudo emys*.

Several American authors have made reference to the turtles from the An-yang site. Pope (cited in Carr, 1952) referred to the presence of *Pseudocadia* at An-yang. Possibly unfamiliar with the work of Lindholm and Bien, Auffenberg (1962) commented on Ping's original description of *Testudo anyangensis*, stating that the shell was definitely that of a freshwater turtle rather than that of a terrestrial tortoise as Ping had suggested (the same conclusion reached earlier by Lindholm). Auffenberg suggested that the An-yang turtle should be renamed *Clemmys anyangensis* (Ping). McDowell (1964), in a taxonomic revision of the turtle family Testudinidae (the family Emydidae of many authors), suggested that *Testudo anyangensis* Ping should be placed in synonymy with the living species *Mauremys mutica* based on the greater likelihood of its having occurred in the area near An-yang, and on the inadequacy of several characteristics used by Ping, Lindholm, and Bien in distinguishing *Mauremys* from *Ocadia*. *Mauremys mutica* would thus represent the fourth species represented at An-yang.

Ting Su (1969) has made the only attempt to date to identify the An-yang turtle shells quantitatively. By comparing ratios of various seams between epidermal scutes on a limited sample of thirty-six plastrons, Ting, like Bien, established the presence of *Ocadia sinensis* and *Chinemys reevesi* among the An-yang remains. To date, no systematic effort has been made to identify large groups of remains from the An-yang site.

2. *Material and Methods*

The identification of turtle skeletons is usually a comparatively simple matter, involving the comparison of unknown materials with comparable material of known identification and origin. The identification of the An-yang turtle remains is rendered more difficult by several factors: (1) relatively little skeletal material of Chinese turtles is available for comparison or identification; (2) little is known of variation, either geographic or allometric, in Asiatic turtles; (3) the plastrons and carapaces at An-yang were mostly burned and broken; and (4) most scholars do not have access to the plastrons themselves, but only to rubbings. Given these difficulties, a quantitative approach, such as that adopted by Ting Su (1969), is the most promising. Since the main goal is to identify the turtle species used by the Shang diviners, I shall take as my corpus the inscribed shells excavated by the Academia Sinica in the An-yang region between 1928 and 1937, and reproduced in *Ping-pien*, *Yi-pien*, and, to a lesser extent, in *Chia-pien* (on these three collections, see sec. 5.4). Since this material consists predominantly of plastrons, all identifications will be based on plastral relationships.

The plastron of modern turtles consists of a layer of bone overlaid by a series of epidermal scutes. The bones and scutes are arranged in species-specific patterns, but the patterns of the seams between the bones and the seams between the scutes are different (fig. 3). Only relationships between scute seams (fig. 31) will be considered here because they are the most easily measured. It is assumed that these scute ratios will vary sufficiently to allow separation of turtle species. Unfortunately, on many of the *Ping-pien* and *Yi-pien* plastrons the seams between the bones and scutes appear superimposed and cannot be separated (fig. 3); these shells, together with those which were scraped clean (sec. 1.3.2) so that only the bone seams are visible, are excluded from the present study.

Total plastron length (PL) was measured; this was taken to be the distance from the most anterior to the most posterior portion of the plastron. The lengths of the following seams were measured along the midventral line: intergular seam length (IGL) (the seam, which spans the distance from the most anterior to the most posterior part of the gular scute, is often not apparent); interhumeral seam length (IHL); interpectoral seam length (IPL); interabdominal seam length (IAB); interfemoral seam length (IFL); and interanal seam length (IAL); these are the various seams formed by the joining of the scutes from the right and left sides along the midline. The width of the plastron was measured in four places: the gular-humeral seam width (PW1), the humeral-pectoral seam width (PW2), the abdominal-femoral seam width (PW3), and the femoral-anal seam width (PW4) (fig. 31).

Two methods were used in the identification of the plastrons. With the first method, a series of ratios was obtained by dividing each seam length by the total plastron length. This technique has the effect of standardizing each seam length with respect to the absolute size of each turtle. Representatives of each turtle species likely to be encountered among the An-yang remains were measured and ratios formed. The ratio determined to be the most satisfactory for distinguishing the species was IGL+IHL/PL. Data was then gathered from as many *Chia-pien*, *Ping-pien*, and *Yi-pien* plastrons as possible, and the IGL+IHL/PL ratios calculated.

The second method considered all seam lengths on one plastron simultaneously by mathematically reducing the total seam length number to a smaller, more workable, number. This technique, called "principal component analysis," has been used effectively for discerning groups among apparently homogeneous clouds of data (Blackith and Reyment [1971]).[1] The comparison of a number of ratios simultaneously should produce identifications somewhat more reliable than those obtained by the first method.

From the standpoint of this study, a weakness of this second method is that differences in size will usually account for most variation. To avoid this bias, the original data matrix was standardized by using ratios of the seam lengths/plastron lengths of pure data and seam lengths/plastron length ratios of log-log transformed data. Sokal (1965) has warned that ratios are of questionable validity for this purpose since there is no reason to assume that the ratios are normally distributed (principal component analysis assumes normally distributed data), but since so little is known of variability or allometric relationships, there seems to be no alternative.

The principal component analysis was performed once each on ratios of untreated and log-log transformed data on the University of Utah Univac 1108 computer using program BMDO1M (Dixon [1974]). Since the program has no provision for missing data, only essentially complete plastrons could be used in this analysis. For comparative purposes, ratios from known examples of *Ocadia sinensis*, *Chinemys reevesi*, and *Mauremys mutica* were included with the unknown *Chia-pien*, *Ping-pien*, and *Yi-pien* data. The values for each turtle on the first principal component were plotted versus the values on the second component (figs. 32 and 33).

3. *Results*

The ratios IGL+IHL/PL are presented in table 3 together with a list of identifications based on similarity of ratios of An-yang material to known material. The validity of the above identifications is rendered uncertain by the lack of knowledge of variation in Chinese turtles. For example, the failure of the humeral-pectoral seam to intersect the entoplastral bone has been used as one of the characters distinguishing *Mauremys* from *Ocadia* (for example, Lindholm [1931]). However, it has been shown by Nakamura (1934) and more recently by Mao (1971) that this character is variable in both *Mauremys* and *Ocadia*. This situation would affect the validity of the ratio-based identifications in the following way: assuming the position of the entoplastral bone remains constant, a humeral-pectoral seam which crosses the entoplastral bone will result in a proportionately shorter intergular plus interhumeral seam (smaller IGL+IHL/PL ratio). This would result in overlap between individual *Mauremys* and *Chinemys* or even *Ocadia* in this character.

[1] With the technique of principal component analysis, the original n × p data matrix (where n = the number of turtles measured) is standardized by centering and normalizing the data matrix. A matrix R is computed as n − 1 times the correlation matrix. The set of simultaneous equations $(R - \lambda I)v = 0$ [where I = identity matrix]) are then solved, yielding a set of eigenvalues (λ) and their corresponding eigenvectors (v) which are the principal components. (For more detailed descriptions of the mathematical procedures, see Blackith and Reyment [1971]; Cooley and Lohnes [1971]; Sneath and Sokal [1973]; and Dixon [1974]).

We can think of the resulting values as being represented by a cloud of points in n-dimensional hyperspace. The first principal component is a line (a vector) oriented in the cloud in such a way that its values (eigenvalues) account for as much variation as possible. The second component is orthogonal (i.e., at right angles) to the first, oriented to account for as much variation as possible. Each vector will have a value with respect to a particular case, so that cases (=turtles) can be ordered with respect to each vector.

Nevertheless, the results of the identifications based on ratios, though of uncertain reliability, provide firmer identifications than were previously available for a large number of *Chia-pien*, *Ping-pien*, and *Yi-pien* plastrons. Most of the plastrons are identified by this first technique as *Ocadia sinensis* and *Chinemys reevesi.*

It can be seen from figs. 32 and 33 that the data assessed by the second technique (principal component analysis) fall generally into two groups: one group which clusters with *Ocadia sinensis* and a second group which clusters with *Chinemys reevesi.* The identifications based on this analysis are listed in table 4 along with individual values on the first two principal components. Questionable identifications are noted with a question mark. Though fewer in number, the identifications based on this analysis agree well with those based on the ratio analysis.

Ping-pien 184 can be identified with certainty as *Testudo emys.* As noted by Wu (1943), the failure of the pectoral scutes to meet at the midline has been used as a diagnostic character for this species (Boulenger [1889]; Bourret [1941]; Smith [1931]; and Wermuth and Mertens [1961]).

4. *Discussion*

Plastrons of three species of aquatic freshwater turtles and one terrestrial tortoise have been identified from the shells used by An-yang diviners.

1. *Ocadia sinensis,* which occurs on Taiwan, mainland China south of Fukien, Hainan, and northern Indochina (Schmidt [1927]; Pope [1935]; McDowell [1964]).

2. *Chinemys* (=*Geoclemmys*) *reevesi,* occurring in Korea, Japan, and Taiwan; in north and central China from southeastern Shantung westward to the Wei Valley in Shensi, throughout the Yangtze River drainage from Szechwan eastward; and along the southern coast of China to Kwangtung (Stejneger [1907]; Pope [1935]; McDowell [1964]; Mao [1971]). Pope reports that *Chinemys* is commonly sold in Chinese markets, resulting in probable artificial dispersal by man.

3. *Mauremys* (=*Clemmys*) *mutica* which occurs in Japan, southern China, Hainan, and Vietnam (Stejneger [1907]; Pope [1935]; McDowell [1964]; and Mao [1971]).

4. *Testudo emys,* a tortoise which occurs in southeast Asia and the Malay Archipelago where it is prized for its flesh (Smith [1931]; Pope [1935]).

Notes on the habits of these turtles can be found in Smith (1931), Pritchard (1967), and Mao (1971). Individuals of *Ocadia, Chinemys,* and *Mauremys* have been maintained in excellent condition for a number of years in the live animal colony of the Herpetology Laboratory of the University of Utah, where they feed readily on lettuce, fruit, and chopped fish.

The identification of the type specimen of *Testudo anyangensis* Ping remains in doubt. It was correctly labeled an aquatic turtle and not a land tortoise by Lindholm ([1931]: *Pseudocadia anyangensis*) and independently by Auffenberg ([1962]: *Clemmys anyangensis*). Bien (1937) referred to the shell as *Ocadia sinensis,* and McDowell (1964) referred to it as *Mauremys mutica.* Nakamura (1934) and Mao (1971) have shown that the characters used by Ping (1930), Lindholm (1931), and Bien (1937) are subject to extreme geographic variation, but my ratio IGL+IHL/PL (based on Ping's figure reproduced in Pope [1935]) is .154, which, based on the results of this study, suggests that the shell is *Ocadia.* In any event, this particular specimen was not used by the Shang diviners.

APPENDIX 2

The Ratio of Scapulas to Plastrons

1. *Fragment Counts*

New finds may always alter our count of the bones and shells used by the Shang diviners. Any conclusion about the ratio of plastrons to scapulas, therefore, is approximate and provisional. The ponderous calculations that follow represent no more than a series of educated guesses.

Many scholars have thought that the Shang used shell more frequently than bone.[1] Shih Chang-ju argued that the corpus we now have could be recombined to form 8,000-plus plastrons and 4,000-plus scapulas, that is, in a shell-bone ratio of 2 to 1.[2] According to Chou Hung-hsiang, "the ratio of plastrons to extant scapulae is 3 to 1."[3] Hu Hou-hsüan, by contrast, calculated that the Shang had used 16,003 plastrons and 11,858 scapulas, that is, in an approximate shell-bone ratio of 4 to 3.[4]

Two issues are involved in estimates of this sort. First, what is the ratio between the number of bone and shell fragments in the present corpus of approximately 176,000 fragments (see appendix 3, sec. 1)? This we do not yet know. Short of undertaking a laborious piece-by-piece census, the best procedure is to calculate the number of bone and shell fragments for the large collections, for which such counts may readily be made, and assume that due both to their size and the random nature of their provenance, such collections are representative of the entire corpus. Second, having arrived at the ratio between the number of bone and shell fragments, we must find out how many bone fragments would make a scapula and how many shell fragments would make a plastron.[5] This again requires a series of assumptions: about the size of the average scapula and plastron and about the size of the average bone and shell fragment.

To estimate, first, the bone-shell ratio and its variations with time, we may work with large collections of varied provenance whose editors have recorded whether each fragment is bone or shell.[6] The ratio of bone and shell fragments in *Chia-pien*, *Jimbun*, *Menzies*, and *White* is given in table 32. The figures for *Menzies* and *White* are not fully comparable with those for *Chia-pien* and *Jimbun* since Hsü Chin-hsiung places the inscriptions of the Royal Family group in period IV, while Ch'ü Wan-li and Kaizuka and Itō place, or permit us to place, them in period I.[7] Nevertheless, the general totals should have some validity. Similar counts need to be made of other large, randomly assembled, collections, such as *Ching-chin* and *Hsü-ts'un*.[8]

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[1] E.g., Chang Ping-ch'üan (1954), p. 218.

[2] Shih Chang-ju (1947), p. 45.

[3] Chou Hung-hsiang (1973), p. 177.

[4] Hu Hou-hsüan (1944a), p. 5b.

[5] In what follows, I make no attempt to distinguish plastrons from carapaces, which were used far less frequently (sec. 1.3.2).

[6] I exclude *Yi-pien* from these discussions. It is composed primarily of period I and RFG shell fragments from one pit, YH127, and cannot be taken as a representative sample in terms of either chronological range or divination material.

The *Jimbun* and *Menzies* figures support the view that there was a virtual monopoly of bone in period III+IV and a marked preference for shell in period V, a phenomenon that has been well remarked.[9] The *Chia-pien* figures, however, reveal a slight preference for shell in III+IV, and more nearly equal usage of bone and shell in V. Hsü Chin-hsiung believes that period III inscriptions were mainly recorded on shell, and that period IV inscriptions, with a few exceptions in IVb, were all on bone.[10] The extent to which this conclusion is supported by the datings of the editors of our four collections is indicated by table 5.[11] The 1973 finds, largely on bone, and largely, it is said, from period IV, give added support to this view.[12]

2. *Scapula and Plastron Counts*

Such counts, however, tell us only about the relative frequency of fragments; they do not necessarily tell us about the relative frequency of whole scapulas and plastrons. Before drawing conclusions about frequency of usage, it is necessary to determine the relative size of the bone and shell fragments, and the relative size of scapulas and plastrons. For ten large pieces of bone and ten small pieces of shell do not necessarily indicate that scapulas and plastrons were used in equal proportion.

Shih Chang-ju argued that it would normally take twenty fragments to make one plastron or scapula.[13] Hu Hou-hsüan suggested, as a tentative approximation, that although it might take ten shell fragments to make a plastron, only five bone fragments would be needed to make a scapula.[14] Hu is undoubtedly correct in assuming that more shell than bone would be required to reconstitute one piece. Plastrons tended to break into smaller fragments because of their suture lines, which are not present in scapulas.

To determine the plastron-to-scapula ratio, however, it is first necessary to determine the size of the average bone and the average shell fragment. By determining the number of fragments reproduced per plate in large, representative collections, it is possible to select the average plate (or plates) and then calculate the average surface area of the fragments on that plate (or plates); for example, *Chia-pien* reproduces 2,513 shell fragments on 142.6 plates; there is thus an average of 18 shell fragments per plate; the surface area of the fragments on plates 8 and 9 (containing a total of 36 fragments, or 18 fragments per plate), measured by imposing a metric grid over the rubbings, is found to be 10.6 sq. cms.; this may be taken as the average size of all *Chia-pien* shell fragments. Table 33 indicates the situation in *Chia-pien*, *Jimbun*, and *Menzies*, and, for comparison, in *Yi-pien* and *T'ieh-yün*, two nontypical collections. The unusual smallness of the *Menzies* shell fragments, already well known and confirmed by the table, suggests that the collection is atypical

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7. On this issue, see ch. 2, n. 18.

8. For similar tabulations that seek to summarize the situation for the whole corpus of inscriptions, see Tung (1933), p. 420; Ch'en Meng-chia (1956), p. 8.

9. Ch'en Meng-chia (1956), p. 8; *Jimbun* 1096, *shakubun*, p. 358; n.; Itō (1962a), p. 253; Hsü Chin-hsiung (1973a), pp. 26, 126.

10. Hsü Chin-hsiung (1973a), pp. 2–3, 48–49. But see n. 11.

11. On the problems involved in separating period III and IV inscriptions, see ch. 4, n. 62 and n. 161.

12. See ch. 4, n. 188.

13. Shih Chang-ju (1947), p. 45.

14. Hu Hou-hsüan (1944a), p. 5b.

and should be excluded from our calculations.[15] Similarly, *T'ieh-yün* is atypical in that the shell fragments tend to be larger than the bone fragments—the result presumably of Liu E's selection of his best and biggest pieces for this first publication of oracle-bone rubbings. *Yi-pien* should also be excluded from our calculations of average surface area because its fragments, mostly excavated from one pit, YH127, and comparatively unbroken, are atypically large (although the ratio between the size of the bone and shell fragments is typical).

If we are willing to accept *Chia-pien* and *Jimbun* as representative, we may reach the following conclusions by averaging the figures given for these two collections in table 33: the average bone fragment had an area of approximately 19 sq. cms., the average shell fragment had an area of approximately 9 sq. cms.; for the average fragment, the ratio of bone-to-shell surface area was approximately 2 to 1.

Before we can translate these figures into scapulas and plastrons, it is still necessary to estimate the surface area of the average scapula and plastron. This is hard to determine, especially in the case of the scapulas, for which whole samples are rare. As a result of measuring all the whole or nearly whole scapulas I could find, I have, *faute de mieux*, selected *Ning-hu* 1.119 (D) as an average specimen; it has an area of about 310 sq. cms. The average length (PL) of the first 118 measurable plastrons (excluding duplicates) in *Ping-pien* is 24.6 cms., and the average width of the first 119 measurable plastrons (not always the same as the 118 whose length was measured) is 17.1 cms. From this it may be estimated that the average area of the plastrons was approximately 318 sq. cms. Combining these figures with those for the average fragment area given above, we find that it would have taken approximately 16 bone fragments (310 ÷ 19) to make one scapula, and approximately 35 shell fragments (318 ÷ 9) to make one plastron. Such figures would not apply to every collection; in some the fragments are far larger, in others far smaller. Ideally, bone and shell fragments in every collection should be measured, duplicates excluded, and the average fragment areas determined for each period. But until such work is done—and I doubt that the results would be worth the painstaking effort—these initial approximations may be accepted as being of the right magnitude for calculations concerning the corpus as a whole.

If we translate the figures in table 31 into terms of whole scapulas and plastrons and use the ratios obtained for each collection (table 33), we arrive at the conclusions given in tables 34 and 35. These are interesting because, crude though they are, they suggest that with the exception of period III + IV, when bone was more popular, scapulas and plastrons were used in roughly equal numbers during the historical period.

It may be objected that merely throwing the *Yi-pien* fragments into the balance would immediately reestablish the dominance of shell over bone. The collection contains over 17,000 shell fragments found in YH 127, which were accompanied by only 8 bone fragments;[16] the shell fragments would be equivalent to approximately 1,700 plastrons.[17] The 1973 discovery of 7,040 bone fragments, which would be equivalent to approximately 1,700 scapulas and only 110 shell fragments (approximately 10.5 plastrons), suggests that including additional collections of this sort would not alter the conclusions reached above.[18] Until the entire corpus is classified and measured, we must rest content with extrapolations based, so far as possible, on typical collections, not on large, atypical caches that were almost exclusively bone or shell.

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[15] On the smallness of the fragments, see Mickel (1973). Menzies, presumably, could not afford many larger shell fragments; his better examples had already been published in *Nan-pei*, "Ming," and *Yin-hsü*.

[16] There is some uncertainty about the exact number. Tung (1949a), p. 259, gives registration numbers for 17,087 fragments; Shih Chang-ju (1959), p. 322, in apparent agreement with Ch'en Meng-chia (1956), p. 156, gives registration numbers for 17,129 fragments.

[17] Using the *Yi-pien* ratio (table 33) of 10.4 fragments per plastron. I estimate that some 800-plus plastrons (or carapaces) have so far been reconstructed, wholly or substantially, in *Yi-pien* and *Ping-pien*.

3. *Bone, Shell, and Divination Topic*

The conclusion (sec. 1.2.3) that the diviner's choice of bone or shell appears to have been unrelated to the matter being divined is provisional, but it accords with the opinion of modern scholars. Lo Chen-yü originally suggested that sacrifice divinations were recorded on turtle shells and other matters on scapulas; that hunt divinations were recorded on leg bones and that scapulas were preferred for military topics.[19] Initial research suggests that this hypothesis is too strict. Using the ratios given in table 33, and taking all periods together, I find that the *Jimbun* and *Menzies* figures reveal a Shang preference for recording sacrifice inscriptions on bone.[20] The *Jimbun* fragments reveal a strong preference for recording hunt inscriptions on bone;[21] a similar preference for bone appears in *Menzies*.[22] But the situation in *Chia-pien* indicates that the Shang used shell and bone equally for hunt divinations.[23] If we identify the materials used for recording divinations about the various cattle sacrifices in *Chia-pien*, *Ping-pien*, *Yi-pien*, and *Jimbun*, we find that bone and shell were used in about the same proportion.[24]

These figures may simply reflect the general predominance of bone or shell in the individual collections counted, but they do at least suggest that scapulas and plastrons could be used in significant numbers for divining either sacrifices or hunts; whatever religious or magical considerations may have once related the divination bone to the bone of the animal being sacrificed or hunted, they were not strongly in evidence by the historical period.[25]

Firmer conclusions about relative preference for bone or shell would have to be made by the tedious and difficult classification of every oracle bone, topic by topic, in every collection. The count would also need to be refined by considering the preferences of particular diviners and changes in preference in the various periods.[26]

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[18] On this find, see ch. 4, n. 188, above. Again, I use the *Yi-pien* ratios from table 33.

[19] Lo Chen-yü (1914), p. 107b; (1969 ed., ch. 3, p. 64b).

[20] In the equations below, I assume (following the argument in appendix 3, sec. 1) that inscribed fragments should be combined with uninscribed fragments in the ratio of 52 to 48. *Jimbun*: 432 inscribed shell fragments = ca. 21 plastrons; 373 inscribed bone fragments = ca. 37 scapulas. *Menzies*: 839-plus inscribed shell fragments = ca. 23 plastrons; 309-plus inscribed bone fragments = ca. 48 scapulas.

[21] Fifty-seven inscribed shell fragments = ca. 3 plastrons; 176 inscribed bone fragments = ca. 17 scapulas.

[22] Ca. 72 inscribed shell fragments = ca. 2 plastrons; ca. 145 inscribed bone fragments = ca. 17 scapulas.

[23] Eighty inscribed shell fragments = ca. 5 plastrons; 41 inscribed bone fragments = ca. 5 scapulas.

[24] Twenty-six inscribed shell fragments = ca. 1.5 plastrons; 14 inscribed bone fragments = ca. 2 scapulas.

[25] The theology of Shang divination will be taken up in *Studies*. On this particular point, cf. Hultkrantz (1968), p. 78.

[26] Cf. ch. 1. n. 34.

APPENDIX 3

The Size of the Sample

1. *Estimate by Fragment Count*

If we wish to judge the representative nature of the inscriptions we now possess (sec. 5.3), it is essential to estimate, crudely to be sure, the total number of pyromantic plastrons and scapulas we now have and the total number originally inscribed by the Shang. The following discussion introduces several approaches to the problem. I hope it will stimulate others to develop methods that are more precise.

For various reasons, it is not possible to give a firm figure for the number of bone and shell fragments that have been excavated. Counts can be and have been made for the number of fragments published and the number of fragments unpublished but held in collections. In the first case, it is necessary to make adjustments for fragments duplicated (or rejoined) in one or more publications;[1] in the second case, it has not always been possible to obtain exact counts. Despite these uncertainties, various studies indicate that approximately 107,000 fragments have been preserved or published.[2]

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[1] In what follows, as throughout the book, I attempt to distinguish between *fragment* (a fragment of bone or shell) and *piece* (a bone or shell published as one rubbing, but which may consist of one or more fragments). *Yi-pien* 7758, for example, is a fragment; *Ping-pien* 45 (formed by joining *Yi-pien* 4864 and 7758) is a piece. That the various counts cited in n. 2 do not always observe this distinction reduces their accuracy, but not, I believe, significantly. On this point, cf. Tung (1953), p. 375. On the way duplicates affect total fragment counts, see, for example, Tung (1953), p. 378; (1954a), p. 120; cf. n. 2 below. The problem of duplicates is a most serious one, particularly for some collections. Of the 655 rubbings in *Chien-shou* (1917), for example, only 60 are not reproduced in *Hsü-pien* (1933); of the 1,125 rubbings in *Fu-yin* (1925), very few are not reproduced in *Hsü-pien* (Mickel, letters of 26 May 1973 and 5 August 1976). For indexes to duplicates, see ch. 5, n. 52, above.

[2] Hu Hou-hsüan (1951), p. 65, and (1952), p. 6, estimated that 161,189 fragments (or pieces?) had been found. This was dismissed as a wild exaggeration by Tung (1953), pp. 380, 381, who revised Hu's figures downward to arrive at a total of 54,113 unpublished pieces and 42,005 published pieces, making 96,118 fragments (or pieces?) in all; this figure he subsequently raised to 109,617 (Tung [1954a], p. 120; [1965], p. 13). Ch'en Meng-chia (1956), p. 47, arrived at an estimated total of 98,000 (cf. his figures, ibid., pp. 655–657). Complete accuracy in such matters would not justify the efforts involved, and most scholars now speak of approximately 100,000 fragments found (e.g., Chang Ping-ch'üan [1967], p. 831; Kaizuka [1967], p. 205). To that figure of 100,000 must be added the 21 scapulas excavated in December 1971 (Kuo Mo-jo [1972]) and the 7,150 bone and shell fragments excavated in 1973 (*KK* [1975.1], p. 37). This means that about 107,000 fragments have now been found and recorded. Note, however, Mickel's estimate that he has now made index cards for over 10,000 cases of duplicate publication (letter of 24 August 1976); this suggests that the figure of 107,000 may eventually prove too large.

As we have seen (appendix 2, sec. 2), it took, on the average, 16 bone fragments to make one scapula, and 35 shell fragments to make one plastron. Before we attempt to translate our 107,000 fragments into numbers of whole scapulas and plastrons, however, it is necessary to estimate the number of blank fragments which would have formed part of the original corpus but which, lacking inscriptions, tended to be discarded as valueless.[3] In the case of the approximately 32,000 fragments excavated scientifically between 1928 and 1973, no adjustments are necessary since the count presumably reflects the total number of fragments found, blank as well as inscribed.[4] A study of these fragments indicates that approximately 48 percent of all fragments excavated were blank.[5] If we apply that figure to the approximately 75,000 fragments collected privately, we may conclude that they must have been accompanied originally by approximately 69,000 fragments that were presumably blank and not preserved.

Adding these 144,000 (75,000 + 69,000) private fragments to the 32,000 excavated scientifically, we may estimate that 176,000 fragments, both blank and inscribed, must have been excavated in the An-yang region between 1899 and 1973.[6]

If we assume (following the argument in appendix 2) that plastrons and scapulas were used in approximately equal quantities and that it took, on the average, 16 bone fragments to make one scapula and 35 shell fragments to make one plastron, then our 176,000 fragments may be taken as equivalent to 3,450 scapulas and 3,450 plastrons. These figures are, of course, gross approximations, but they are suggestive.[7]

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[3] Blanks may be of two types: (1) fragments of scapulas or plastrons which, though used for divination, were never inscribed with writing; or (2) blank fragments from scapulas or plastrons whose divination inscriptions did not extend to this area of the bone or shell. Inability to distinguish between the two types renders our calculations imprecise. The suggestion of Liu Yüan-lin (1974), p. 128, relying on physical criteria (cf. ch. 4, n. 150), that the pre-Wu Ting oracle bones at An-yang were not inscribed is plausible but not yet proven.

[4] The Academia Sinica excavated 24,918 fragments between 1928 and 1937 (Tung [1953], p. 378). Twenty-one scapulas were excavated in 1971 and 7,150 bone and shell fragments in 1973 (see n. 2). This makes a total of 32,089. On the way blanks may or may not have been registered in the first dig, see ch. 4, n. 184.

[5] Of the 24,918 fragments excavated by the Academia Sinica in twelve digs between 1928 and 1937, approximately 13,000 pieces (52 percent) were published in *Chia-pien* and *Yi-pien* (Tung [1953], p. 378; cf. Ch'en Meng-chia [1956], p. 655). An identical ratio may be obtained by counting the number of published and unpublished (and presumably blank) fragments in all pits containing more than fifty fragments, namely, A26, E9, F36, and F37 from the first dig; TLK and longitudinal trench 13 ping (north) from the third dig; E16 and H20 from the fifth dig; B119, YH6, YH127, YH330, and YH344 from the thirteenth dig; and the 1973 finds. The statistics may be taken from Tung (1929b); (1929c); (1949); (1949a); Shih Chang-ju (1959), pp. 320–323; *KK* (1975.1), p. 37. Previous estimates of the proportion of blank to inscribed fragments have ranged from over 90 percent (Li Chi [1933], p. 575) to approximately 50 percent (Hu Hou-hsüan [1944a], pp. 4b–5a) to over 50 percent (Tung [1953], p. 375).

[6] This figure, of course, ignores the thousands of fragments that must have been thrown away, ground up for medicine or fertilizer, or lost in countless other ways over the centuries (cf. Hu Hou-hsüan [1944a], p. 4b; [1955], p. 11). For example, nearly fifty thousand fragments stored in Menzies' house were reported destroyed (or buried?) in 1928 (Yetts [1933], p. 673); these may have been part of the store of over ten thousand fragments dug up on the campus of Chi-nan University in 1952, most of which had rotted away (*Ming-hou*, preface, p. 3). There is no way to estimate the total numbers lost, but since they are lost they have no bearing on this part of our enquiry, save to remind us that a certain proportion of the Shang corpus that was once found is now, thanks to the activities of man, forever irretrievable.

[7] Hu Hou-hsüan (1944a), pp. 4a–5b, arrives at far larger totals: 16,003 plastrons and 11,858 scapulas; and if the 1971 and 1973 finds (n. 2) were included, his figures would be still larger. His estimate of fragments found, however, appears inflated (n. 2), and his view that it took only ten fragments to make a plastron and five to make a scapula is unsupported by the evidence (see appendix 2, sec. 2).

If, for example, we arbitrarily assume that the Shang kings used 1 scapula and 1 plastron a day, the 3,450 scapulas and 3,450 plastrons would have lasted less than 10 years.[8] For the present materials to have lasted the approximately 150 years from Wu Ting's accession to the end of the dynasty, the Shang kings could have used only 1 scapula and 1 plastron every 16 days.[9]

Such a rate of use is impossibly low. We know of divinations about the night made on a daily basis; we know the fortune of the coming week was divined every ten days; we know of cases where five plastrons were used in approximately eleven days (sec. 3.7.4.1). Presumably these were not the only divinations made on those days; these were not the only oracle bones used. The fact that carving was done on a mass-production basis (sec. 2.9.3); the fact that several hundred shells might be received in one shipment, and that 30 or 40 or even 100 shells might be ritually prepared at one time (sec. 1.4)—all this suggests that the diviners used more than 1 bone or 1 shell every 16 days. If we temporarily, and conservatively, assume that the Shang cracked and inscribed 1 scapula and 1 plastron a day, then, at the most, our 176,000 fragments represent only 1/16 (6.25 percent) of the original corpus.[10]

2. *Estimate on the Basis of Marginal Notations*

The proportion of the original inscriptions that we now possess may also be estimated from a study of the marginal notations. For example, the notation "Ch'üeh sent in 250 (shells)" has now been found on some 22 plastrons or plastron fragments from pit YH127.[11] If we assume that every plastron sent in at that time was inscribed with the same notation,[12] we are still missing 228 plastrons (or, more accurately, plastron fragments) with that notation. Similarly, 6 plastrons or plastron fragments from the same pit contain the notation "Wo[13] brought in (?) 1,000 (shells)"; presumably, the other 994 notations have not yet been discovered.[14] By contrast, *Ping-pien* 13.9

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[8] Presumably, the rate of use varied from period to period, topic to topic, diviner to diviner. In period I, a single plastron might be used up in one day (*Ping-pien 8*; fig. 8), or a set of five plastrons might be used up in eleven days (see ch. 3, n. 119); in period III, a set of five plastrons might be used up in twenty-six days (*Chia-pien 3917*); in period V, a set of five scapulas might be used for at least seventy days (*Hsü-ts'un 2.972* [D]; fig. 10). More research is needed to show if there was a trend in the later periods to use scapulas and plastrons over longer periods of time.

[9] For the 150 years of my revised short chronology, see appendix 4, sec. 6; if the long chronology of 273 years is used, the Shang would have divined 1 scapula and 1 plastron every 29 days.

[10] This figure is based on the revised short chronology (see appendix 4, sec. 6); if the long chronology is used, the figure falls to less than 3.5 percent. And if the Shang used more than one bone and shell a day, the percentages would be still lower.

[11] *Chui-ho* 127; *Ping-pien* 196 (*Cr*); 355 (*Cr*); 357; 359 (*Cr*); 369 (*Cr*); 374 (*Cr*); 376; 389 (*Cr*); 539; 579 (*Cr*); 586 (*Cr*); 616 (*Cr*); *Yi-pien* 754 (*Cr*); 3289 (*Cr*); 3300; 4420; 4541; 7050; 7123 (*Cr*); 7153; 7491 (*Cr*); cf. *Yi-pien* 5256.1–2 (Itō [1962a], pp. 254–255). For the turtle identifications, see tables 3 and 4.

[12] The assumption is unverifiable (cf. Shirakawa [1957], p. 61, n. 1); some of the shells from this shipment may not have been so inscribed. On the other hand, the possibility that Ch'üeh sent in two or more sets of 250 shells during period I cannot be excluded. The facts that the plastrons with this notation were all excavated from YH127 and that, to the extent that we can measure and identify them, many were of similar size (cf. Tung [1949a], pp. 268–269) and of the same species (*Chinemys reevesi*) (n. 11) make it plausible to assume, at least in this case, that they all belonged to the same shipment.

[13] See ch. 1, n. 72.

[14] The six pieces are *Yi-pien* 1053 (*Cr*); 2684 (*Cr*); 2702 (= *Ping-pien* 268); 3432 (*Cr*); 6686 (*Cr*); 6967 (*Cr*) (S352.2). Two more fragments, *Yi-pien* 909 and 6860 (S352.2), may belong to the same shipment, but their notations are incomplete. These plastrons were all found in pit YH127.

and 21.9, with the marginal notation "Chih Fei (?) sent in 2 (shells)," represent a case where the 2 shells sent in at one time have presumably been found, starting and ending the same set of 5 plastrons (for this set, see sec. 3.7).

It is possible to quantify such data by considering the number of shells supplied by Ch'üeh 雀, Chu 貯, Chu 壴, and Hsi 喜, who were among the major suppliers (S256.1–256.2). The figures in table 36 support the logical conclusion that the larger the number of pieces sent in, the smaller the percentage we are now likely to have[15] and that the percentage falls sharply as the number of pieces sent in rises over 10. That is, the average percentage recovered for groups of 10 plastrons or less is about 57 percent; for groups in the range from 11 to 99 plastrons, the average percentage recovered is about 6 percent; for groups of 100 plastrons or more it is about 3.5 percent. Again, working with crude approximations, it appears that the median size of all income notations was 10 units; the average size was 88.[16] This suggests—and again I would stress the roughness of these figures—that while we may have approximately 57 percent of the more numerous, smaller shipments, we may have only some 2 to 6 percent of the larger ones. And the bulk of the Shang receipts appears to have come in these larger shipments. As a rough estimate, therefore, it would seem plausible to suppose that for period I at least, when these notations were being recorded (sec. 4.3.1.6), we have no more than 5 percent of the materials that were sent in to the Shang.[17]

3. *Estimate by Scheduled Divinations*

A third approach for estimating the degree to which our present store of inscriptions represents the original corpus takes advantage of the fact that under the New School of periods IIb and V the Shang divined about certain topics according to a rigid and continuous schedule (for examples see appendix 5, sec. 2). If we assume that Tsu Chia reigned for 20 years,[18] we would expect to find, according to Tung's study of the five rituals in period IIb, divinations about 23 sacrificial cycles, or, since there were 245 divinations in each cycle, 5,635 ritual divinations.[19] In fact, Shima's *Sōrui* (sec. 3.3.2) records about 327 inscriptions, 5.8 percent of the number expected.

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[15] The records of ritual preparation (ch. 1, n. 71) confirm that the smaller our original sample, the more fragments we are likely to have (this approach was first used by Tung [1954], pp. 460, 463). Thus, the socket notation "Fu Ching ritually prepared so many pairs (of scapulas)" (S151.3) is found on 9 sockets; these 9 notations refer to a total of 62 bones (duplicate cases being excluded to the best of my ability); the similar notation for Fu Hao is found on 7 sockets, referring to a total of 41 bones (S151.3–4); for Yi 邑, it is found on 19 sockets, referring to 104 bones (S152.1). In these cases, therefore, we have 14.5 percent, 17 percent, and 18 percent of the original number of bones (always assuming, of course, that all the sockets were so inscribed in each case), but the average number of bones involved in these 3 cases is less than 6.

[16] These figures are derived from Hu Houhsüan (1944a), pp. 11b–12b. His tables are out of date and incomplete, but there is no reason to think that they seriously distort the true situation.

[17] It is not certain that the Shang used and carved inscriptions on all the materials that were sent in. It is conceivable that when Ch'üeh sent in 250 shells, the Shang discarded, or used for other purposes, all but twenty-two of them. But this seems unlikely. I assume, pending evidence to the contrary, that bones and shells were valued and their entry noted primarily because they were needed for Shang divination, and that they were so used.

[18] For the twenty-year reign length, see appendix 4, sec. 5.

[19] Five rituals offered to each of 29 ancestors and 20 ancestresses call for a total of 245 inscriptions. For the source of these figures, see n. 20.

If, following the long chronology, Tsu Chia is accorded a reign of 33 years, involving 38 sacrifice cycles, our present inscription sample represents only 3.5 percent of the original.[20]

Similarly, if we assume that Ti Yi and Ti Hsin reigned for 50 years,[21] and divined about 50 sacrificial cycles, involving, at this point, 285 divinations in each cycle,[22] we now have only 587 five-ritual inscriptions (4 percent) out of the total of 14,250 that we believe were originally divined. If we use the long chronology, that figure would be reduced to 2 percent.[23] If we count the "ten-day plus appended sacrifice" inscriptions from period V, we find a similar situation. Assuming a 50-year period, we now have only 257 (14 percent) out of an expected 1,800 divinations. If we use the long chronology, that figure would be reduced to 7 percent.[24]

These figures need to be revised slightly upward by taking account of inscriptions, such as those in *Menzies* and *White*, not included in Shima's *Sōrui*.[25] But again, this method suggests that if the short chronology applies, we possess little more than from 4 to 14 percent of the inscriptions originally made; and if the long chronology applies, from 2 to 7 percent.

4. *Conclusions: Rate of Use*

It is true that numbers of pieces (or fragments) (discussed in sec. 1 and 2 above) and numbers of inscriptions (discussed in sec. 3) are not fully commensurable since one piece or fragment may contain several inscriptions. It is also true that the representative nature of the sample may vary by topic and period. Nevertheless, all approaches support the conclusion that, on the average, the number of inscribed fragments we now possess is, at most, no more than about 5 to 10 percent of those originally in existence.

If the 3,450 scapulas and 3,450 plastrons to which we reduced our present corpus (sec. 1) represent, let us say, 5 percent of the materials which the Shang actually used, the total inscription corpus would originally have been recorded on some 69,000 scapulas and 69,000 plastrons. If we use the short chronology, which allots approximately 150 years to the Wu Ting-Ti Hsin era, the Shang diviners would have used approximately 1.3 scapulas and 1.3 plastrons a day, or the bones and shells from some 6 bovids and 13 turtles each ten-day week.[26] Such an estimate, crude though it is, is presumably of the right magnitude.[27]

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[20] This approach was pioneered by Tung (1945), pt. 1, ch. 3, pp. 16a–b; pt. 2, ch. 8, p. 1a, who found only 61 divinations (0.6 percent) out of an expected 9,310; here I revise his figures by counting the inscriptions listed by S91.3–4; 127.2–4; 250.2–3; 398.3–4; 492.4–493.2. These calculations assume, of course, that the New School reforms were instituted in the first year of Tsu Chia's reign; if instituted later, the percentage figures would rise accordingly. For the long and short chronologies, see appendix 4.

[21] For the fifty-year reign length, see appendix 4, sec. 5.

[22] Five rituals offered to each of 33 ancestors and 24 ancestresses call for a total of 285 inscriptions. For the source of these figures, see n. 23 below.

[23] Following the approach of Tung (1945), pt. 1, ch. 3, pp. 18b, 20b, but revising his figures by counting the inscriptions listed at S92.1–3; 128.1–3; 250.4–251.2; 398.4–399.2; 493.4–494.4.

[24] Following the approach of Tung (1945), pt. 1, ch. 3, p. 20b, but revising his figures by counting the inscriptions listed at S166.4–168.2. If we follow Tung by assigning Ti Hsin only 52 sacrificial cycles for his 63 years, then, using the long chronology, we would have only 8 percent of the original inscriptions.

[25] See, for example, Hsü Chin-hsiung (1970b). The 1973 finds are not likely to affect our calculations since they are reported to contain few period V fragments and none from period II (*KK* [1975.1], p. 39).

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[26] The rate of use would decrease if the long chronology of 273 years is used, or if it is argued that we now have more than 5 percent of the original corpus. For example, using the short chronology (150 years), if our present corpus is 10 percent of the original corpus, rate of use would have been about 0.63 scapulas and 0.63 plastrons a day; with the long chronology (273 years), if our present corpus is 5 percent of the original corpus, rate of use would have been 0.69 scapulas and 0.69 plastrons a day; if 10 percent, rate of use would have been 0.35 scapulas and 0.35 plastrons a day. The improbable lowness of all these figures suggests that our present corpus may be less than 5 percent of the original corpus, or that the short chronology is to be preferred to the long, or both.

[27] The fact that we have so few complete sets extending over five bones or shells (for examples, see ch. 2, n. 50) is further indication of the small percentage of the original corpus we now possess. By period V, for example, sets appear to have been divined regularly on five separate bones or shells (as in fig. 10), but we do not have, so far as I know, a set of fragments from the five bones in even one set.

APPENDIX 4

Absolute Chronology: A Brief Note

1. *Introduction*

The absolute date of the oracle-bone inscriptions is, strictly speaking, a subject for historical rather than historiographical enquiry. It may be possible to deduce the date of the inscriptions by a study of their content; it is not possible to do so by a study of their form or nature. Since, however, certain of the statistical judgments proposed in appendixes 2 and 3 depend upon the absolute length, if not the absolute dates, of the reigns from Wu Ting to Ti Hsin, a brief synopsis of the issues and possible solutions will be given here.[1]

2. *The Date of the Western Chou Conquest*

Most attempts to determine the date of the Shang dynasty use the date of its fall as their foundation. At least twenty different dates have now been proposed for the conquest, ranging from 1122 to 1018 B.C., eloquent commentary on the inadequacies and ambiguities of the evidence we possess.[2] Ssu-ma Ch'ien's failure to date the conquest suggests the difficulties involved. The disagreements are essentially between two rival chronologies: the "long" one, which gives a conquest date in or near 1122; and the "short" one, which gives a conquest date in or near 1028 B.C.[3]

The long chronology was first proposed by Liu Hsin 劉歆 (first century B.C. and A.D.) in his *Shih-ching* 世經, "Canon of the Ages," a work created, with the aid of a smattering of historical and quasi-historical records,[4] to vindicate the accuracy of his *San-t'ung-li* 三通歷, "The Calendrical

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[1] For a preliminary study of this problem, see Keightley (1975) and (1975b).

[2] Barnard (1975), pp. 16–17, has the latest list (to which may be added Lao Kan [1974] with a proposed conquest date of 1025 B.C.); cf. Barnard (1972), pp. xxxix–xlii. Useful tabulations and discussions of the major theories may be found in Tung (1945), pt. 1, ch. 2, pp. 6b–8a; ch. 4, pp. 11b–28b; (1951b), p. 199; Shima (1966); Shirakawa (1971), pp. 280–281. As Chang Kwang-chih has remarked ([1965], pp. 505–506), "Some of these [dates], such as 1122, 1111, 1050, 1027, and 1018, may have been reconstructed on firmer grounds than others, but there is no one, in my opinion, that stands out and can be accepted as *the* most reliable."

[3] On the rival chronologies in general, see Chavannes (1895), pp. cxc–cxcvi; Gardner (1961), p. 26, n. 8.

[4] For studies of Liu Hsin's *Shih-ching*, see de Saussure (1924), pp. 322–339; Noda and Yabuuchi (1945), pp. 137–179 and passim; Ch'en Meng-chia (1955), pp. 67–72.

Complex of the Triple Concordance System,"[5] which was compiled about the time of Christ. The date of 1122 B.C. was calculated by Liu Hsin to accord with records about the supposed (and, in fact, erroneous) position of Jupiter at the time of the conquest.[6] It is clear from the errors they contain that the records about the planet's position, attributed to early Chou tradition, depend on retrospective, astronomical calculations made in Warring States or Han times.[7] They have no astronomical validity; nor do the chronological conclusions that Liu Hsin drew from them. Equally flawed are Liu Hsin's attempts to relate his faulty Jupiter cycle to a Western Chou lunar calendar, reconstructed on Eastern Chou principles applied to ambiguous passages of dubious historicity in *Shang-shu*, "Wu ch'eng" and its preface.[8] The details must be reserved for *Studies*, but it may safely be stated that no reliable Chou or Han data support the 1122 B.C. date.

The short chronology, which places the conquest in 1028 B.C., is based upon an entry in *Ku-pen chu-shu chi-nien*: "From Wu Wang's extinguishing Yin down to Yu Wang was a total of 257 years."[9] This figure is no more reliable than Liu Hsin's. In the first place, we cannot be sure that the figure of 257 years was in the original *Chi-nien* rather than in a subsequent commentary. Second, we cannot be sure that the figure has been transmitted accurately. Third, it is uncertain if the 257 years refers to the end or the start of Yu Wang's reign; if to the start, then the conquest must be advanced eleven years to 1039 B.C. Fourth, and most importantly, there is no reason to think that the *Chi-nien* author(s) had access to a chronological tradition that derived from accurate Western Chou records.[10] Unlike Liu Hsin's 1122 date, the *Chi-nien* date cannot be rejected as spuriously determined, for we have no idea how it was determined.

Some of the modern chronologies proposed for the Shang historical period are presented in table 37. To a greater or lesser extent they all rely on the "long" or "short" chronologies and are, in my view, flawed accordingly.

3. *Scientific Dating*

Barnard has argued that carbon-14 dates, dendrochronologically corrected, of An-yang material (table 2) indicate "fairly decisively" the superiority of the long chronology over the short,[11] but such a conclusion is premature for a number of reasons: (1) only two samples of charcoal have been so dated;[12] (2) the presence of the charcoal (which might have lain on the ground for a considerable period prior to burial) is unexplained; (3) the relative date of the sites—one, the large tomb at Wu-kuan-ts'un 武官村,[13] the other a cache of pyromantic scapulas[14]—is uncertain; it is hard, therefore, to relate the carbon-14 dates to Tung's five periods; (4) the standard deviation is so large (over ±150 years, after dendrochronological correction, with even a one-sigma confidence interval) that the two dates are useless for helping us choose between the long and short chronologies;[15] (5) the half-life of carbon-14 is still not determined beyond doubt;[16] (6) the degree to which dendrochronological corrections, based largely on data from other parts of the world, may safely be applied to the Chinese Bronze Age is not yet certain;[17] (7) the analytical and statistical techniques of the Chinese carbon-14 laboratories have not yet been compared with those elsewhere; the question of interlab variability, therefore, introduces another unknown factor.[18] We will need scores of carbon-14 dates from the An-yang site before any firm conclusions based on this method can be drawn about the absolute dates of the historical period. At present, any conclusions based on the limited evidence we have rest upon a large number of uncertain assumptions.

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[5] This is the translation given by Sivin (1969), p. 12.

[6] The passage in question reads, "From the Superior Epoch of the Triple Concordance to the year when (Wu Wang) attacked Chou 紂 (Ti Hsin, K28), there were 142,109 years. Jupiter was in Ch'un-huo 鶉火, 13 degrees in (the lunar lodge) Chang 張" (*Han-shu*, ch. 21b, p. 53b). For comment on this passage, see de Saussure (1924), pp. 330–331; Noda and Yabuuchi (1945), p. 289.

[7] Eberhard, Müller, and Henseling (1970), pp. 949–979; Noda and Yabuuchi (1945), pp. 161–164.

[8] *Han-shu*, ch. 21b, pp. 60a–61a. The text has been glossed by de Saussure (1924), pp. 330–331; Noda and Yabuuchi (1945), p. 289.

[9] Fan (1962), p. 35.

[10] The chronological problems are discussed in detail by Barnard (1960b). His study is particularly valuable for noting that the chronological data given in the *Chi-nien* are inconsistent and that "the figure 257 years is insufficient to cover the absolute minimum of [Western Chou] reign lengths as incompletely recorded in the *Ancient Bamboo Annals*" (p. 506). By using internal evidence and by comparing the text itself with actual documents from the period which it purports to record, it may be shown that the *Chi-nien* is not a reliable source for historians, but a late Chou view of early history. Its dubious historicity will be discussed more fully in *Studies* (for a preliminary treatment, see Keightley [1975a]).

[11] Barnard (1975), pp. 30–31.

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12. The Chinese reports give no information about how the charcoal was so identified. On the possibilities for, and consequences of, mistaken identification, see Michels (1973), pp. 158–159.

13. Sample ZK-5 was found in the great tomb, WKGM 1, excavated in 1950. The tomb's relative position within the historical period has not been established. The original report (Kuo Pao-chün [1951]) makes no attempt to do so. Barnard (1975), p. 31, refers to it as "a comparatively late burial," but Kane (1975), p. 109, tentatively dates it to "An-yang third generation," that is, by her count (which includes P'an Keng's generation), to Tung's period II. If we suppose, for sake of argument, that it was a period II burial, we still do not know if the charcoal was contemporary with the grave itself, or older. For the carbon-14 datings proposed for this sample, see table 2.

14. The oracle bones with which sample ZK-86 was found are difficult to periodize with certainty. Kuo Mo-jo (1972), p. 5, places them in period I; my own study of the ancestral titles suggests that they belong to the RFG, which I would also date to period I (see ch. 2, n. 18). Ch'iu (1972) argues, unconvincingly in my view, for a period III + IV date. Whatever the date of the oracle-bone inscriptions (which could not, in any event, yield more than a *terminus ante quem* for the find), the date of the ceramic vessels and fragments from the same stratum must also be considered. At present, we know only that the excavators dated these to "the first half of the late Yin period," which Kuo Mo-jo interprets to mean period III or IVa. Even if this dating is accepted and the pit is taken as a period III + IV find, it is still not clear if the charcoal should be dated to the time the scapulas were divined (period I?) or the time they were laid in the ground (period III + IV?), or neither.

15. The statistical issues are explained by Clark (1975), pp. 265–266. If, as he advises, one works with 95 percent (or two-sigma) confidence intervals, then the intervals that result are too gross to be useful for the judgments we need to make (see table 2). But if, for two samples—such as ZK-5 and ZK-86—one uses 68 percent (or one-sigma) confidence intervals, as Barnard has done, then there is roughly a fifty-fifty chance that "the actual calendar date of at least one of the samples will lie outside the corresponding confidence intervals."

16. E.g., Goodyear (1971), p. 181: "More serious doubts surround the precise value of the half-life of C^{14}, which different workers have put at from 4,700 to 7,200 years, but which has now been provisionally accepted internationally as 5,568 ± 30 years. It is not possible to give any one definite figure for the reliability of radiocarbon dates, but one must allow for a possible error of at least 10 percent." Clark (1975) uses the 5568 half-life. Barnard (1975) usually records both the 5568 and the 5730 half-life figures.

17. Cf. Barnard (1975), p. 38. To the best of my knowledge, the only Far Eastern data incorporated into discussions of the accuracy of dendrochronological corrections are those of Kigoshi and Hasegawa (1966), who studied tree rings from a giant cedar taken from Yaku Island, Japan; Clark (1975), p. 260, makes use of their work.

18. Cf. Barnard (1975), pp. vi, vii, 21–22; Clark (1975), pp. 252, 258–259.

4. *Celestial Phenomena*

The attempt to provide absolute dates for the lunar eclipses recorded in the oracle bones also rests upon a number of uncertain assumptions. It assumes in particular: (1) that the inscriptions are true astronomical records, not fabricated portents; and (2) that the sixty-day *kan-chih* cycle, which the Shang used to date the days and record the eclipses, was in continuous use, without error, from the reign of Wu Ting down to the present (this must be so if we are to relate the free-floating cyclical dates to absolute dates). The matter will be discussed fully in *Studies*, but there are, I believe, reasons for accepting these assumptions as true. Using "A Canon of Lunar Eclipses from −1500 to −1000 with Conditions for Determining Visibility at Anyang" developed by Robert R. Newton, four period I lunar eclipse records, all verifications, may be dated to the eighteen-year period from 1198 to 1180 B.C.[19] Other, less plausible, clusters of dates may be assigned, but if the eclipses are dated correctly—and the fact that the first and last of the four period I eclipses were recorded on plastrons from the same pit, YH127, whose contents would thus have spanned some eighteen years, offers some support for this view—then the short chronology is to be preferred to the long (cf. sec. 5 below).

5. *Average Reign Lengths*

Only in period V does the combination of a rigid ritual schedule with the recording of numbered ritual cycles (sec. 4.3.1.7) permit educated estimates to be made of the reign lengths of Ti Yi and Ti Hsin. These estimates vary in accordance with the way particular scholars have reconstructed the period V ritual calendar. It is clear from the inscriptions, however, that the reigns of these two kings each lasted from twenty to thirty-three years.[20] For reign lengths in periods I to IV, the inscriptions contain no information of value.

[19] This canon, which has now been published as (Newton [1977]), supersedes that of Dubs (1947); Newton's canon is both more accurate, being based upon more recent studies of the movement of the earth, sun, and moon, and more realistic in that it enables us to allow for possible eccentricities in the orbits of the earth and moon which would lead to errors in the retrospective calculations. For a preliminary treatment of the eclipse inscriptions, see Keightley (1975), pp. 132–174c; (1975b); for a recent study, which arrives at different conclusions, see Chang P'ei-yü (1975). The four verifications and the dates I would assign them are: *Ping-pien* 57.1 (4 November 1198); *Fu-yin*, "T'ien" 2 (25 October 1189); *Chin-chang* 594 (D) and *K'u-fang* 1595 (D) (27 December 1192; note that the inscription itself can be dated to the Shang twelfth month); and *Ping-pien* 59.1/60 (22 May 1180); these inscriptions are transcribed at S162.1. A fifth lunar eclipse may have been recorded as a divination charge on one of the scapulas (H23:66) discovered in 1973. The inscription reads, in part, *jen-yin *tieng yüeh yu chih* 壬寅冎 月又戠. If 戠 (**t̂i̯ək*) was equivalent to 食 (**d̂i̯ək*)—*Hou-pien* 1.29.6 and *Ts'ui-pien* 55 [S581.2] offer good evidence that this was so; cf. Shima [1958], p. 270; Serruys [1974], p. 104—we may translate: "On jen-yin (day 39) divining: 'The moon was eclipsed.'" If we assume that the (daytime?) charge referred to an eclipse in the night before (day 38) and if, with the authors of the preliminary report (*KK* [1975.1], p. 38; cf. *KK* [1975.3], p. 142 and plate 1), we date the inscription to period IVa, then this could be a record of the eclipse of 28 December 1127 B.C., providing added support for the revised short chronology of table 38, which dates period IVa to about 1130–1116 B.C. Uncertainties about the meaning of the inscription, about the cyclical date of the eclipse, and about the period of the inscription, however, make this record less reliable than the four cases cited above.

[20] Ch'en Meng-chia (1955), p. 59. Shima (1960), p. 51, argues that Ti Yi was succeeded by Ti Hsin in the seventh month of Ti Yi's twenty-first cycle; subsequently ([1966], p. 13), he located the reign change in Ti Yi's twentieth cycle. Hsü Chin-hsiung (1970), p. 26, using a new interpreta-

It is possible, however, to estimate the length of the average reign. On the basis of the reign lengths recorded in *Shih-chi,* Bishop arrived at an average reign length of twenty years for the various kings and state rulers of Chou.[21] It seems likely that the reigns of the historical Shang period would have been of the same average length (if not shorter).[22] This suggests that the Wu Ting-Ti Hsin era would have lasted 160 years (if there were eight kings) or 180 years (if there were nine).[23]

If we use Bishop's figure of twenty years per reign for the ten Western Chou kings who ruled prior to the start of the Kung Ho 共和 period in 841 B.C. (the first firm date we are thought to possess), we can estimate that the conquest would have taken place about 1041 B.C.[24] This figure accords well with the dates provided by the eclipse inscriptions, which place Wu Ting on the throne from about 1200 to 1180 B.C. If (deleting Lin Hsin),[25] seven more kings ruled before the conquest, and if those seven kings reigned for an average of twenty years, we arrive at a conquest date of 1040 B.C.

6. *Conclusions: A Revised Short Chronology*

The revised short chronology presented in table 38 is a tentative one, based on the lunar eclipse dates and average reign lengths, the latter adjusted to take account of information found in the inscriptions. It is offered only as a working model, and it is undoubtedly inaccurate in its theoretical rationing of the reign lengths. It has the advantage of being based on no legendary information—such as the fifty-nine years traditionally assigned to Wu Ting[26]—yet it does accord

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tion of the ritual cycle derived from inscriptions not used by Shima, argues that Ti Yi reigned 31 years. Tung (1945), pt. 1, ch. 3, p. 18b; pt. 2, ch. 1, p. 42b, allotted 35 years to Ti Yi. As to Ti Hsin, Shima (1960), p. 52, first argued that he was on the throne for 30-plus cycles, then refined that figure ([1966], p. 21; cf. [1976]) to argue that Ti Hsin was killed during the thirty-third cycle, and thus reigned 32 cycles. Tung (1945), pt. 1, ch. 3, p. 19a; pt. 2, ch. 1, p. 50b, by contrast, allotted 63 years to Ti Hsin. Since no inscriptions which record more than a twentieth cycle have been found, this figure is implausibly large.

[21] Bishop (1932), pp. 234–235. Similar results may be obtained from the approach of Lei (1931), who calculated that the average royal generation throughout Chinese history lasted twenty-five years. If we assume that the lunar eclipse inscriptions place Wu Ting on the throne at about 1200–1180 B.C., and that there were seven generations of Shang kings during the historical period, we arrive at a conquest date of (1200 − [7 × 25] =) ca. 1025 B.C. Lei, working backward from known Chou dates, arrived at a conquest date of about 1030–1020 B.C. (cf. Ho [1975], p. 4). Whether reign lengths are more accurate for our purposes than generations is problematical.

[22] It is unlikely that the Shang kings were markedly longer-lived than the kings of Western Chou. This consideration alone challenges many of the traditional reign lengths given in table 37; cf. n. 24 below. *Ku-pen chu-shu chi-nien* (Fan [1962], p. 24) tells us that from the time T'ang (K1) extinguished the Hsia down to Shou 受 (K28), there were twenty-nine Shang kings in 496 years. For what this is worth—and all the objections raised at n. 10 above apply—this would give an average reign of seventeen years.

[23] On the question of whether Lin Hsin reigned or not, see table 1, note h.

[24] Cf. Bishop (1932), pp. 232–237. The long chronology, which places the conquest in 1122, would require that the ten kings have ruled for an average of twenty-eight years (cf. n. 22). The average reign lengths of all but one Chinese dynasty have been far shorter; for example, Eastern Chou, is estimated at 22 years; Sung, at 21 years; Later Han, at 16 years; T'ang, at 12 years, etc. It is unlikely that the Western Chou kings would have reigned, on the average, nearly as long as the Ch'ing emperors (about thirty years). It is not entirely certain, of course, that the figure of "ten kings" is accurate, though all reconstructions of Western Chou chronology (as listed by Barnard [1975], pp. 16–17) use it.

[25] See n. 23.

[26] See table 37, note d.

well with many Eastern Chou and Han traditions.[27] I doubt that any of its figures are in error by more than twenty-five years. Given the disproportionately large number of period I inscriptions in the corpus (sec. 5.3.2), it is possible that Wu Ting reigned longer than twenty years; but whether that would put the start of his reign significantly before 1200 B.C. or the end of his reign well after 1180 B.C. is problematic. It may be noted, incidentally, that the reign dates given in table 38 are not excluded by the initial carbon-14 determinations given in table 2.[28]

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27. As Ch'en Meng-chia ([1955], pp. 55–56) has shown, passages in *Tso-chuan*, *Meng-tzu*, and *Shih-chi*, "Lu shih-chia," suggest that the authors of these texts believed the Western Chou to have lasted for about 240 to 290 years (which would give a conquest date of 1060–1010), with a length of 250 to 260 years (and thus a conquest date of 1030–1020 B.C.) being favored. The reliability and usefulness of these figures is uncertain—on the *Meng-tzu* passage in particular see Knoblock (1964).

28. ZK-5 is said to come from a period II burial (see n. 13). It should, according to table 2, using one-sigma confidence intervals, be carbon-14 dated to 1403–1079 B.C.; the revised short chronology of table 38 assigns a date of 1180–1151 B.C. to period II. According to table 2, ZK-86 should be carbon-dated to 1429–1124 B.C.; if this sample is, at the latest, a period III + IV charcoal fragment (see n. 14), then the revised short chronology (table 38) would assign a date of 1150–1091 B.C. to period III + IV. The possibility that the charcoal was older than the burial has already been mentioned.

APPENDIX 5

Relative Chronology: The Periodicity of Divination Topics and Idioms

1. *Introduction*

The general evolution of pyromantic practice in the historical period was briefly described in sec. 4.3.1.12. Changes in the topics and idioms divined can greatly assist our attempts to periodize particular inscriptions. For the most part, such changes cannot be generalized; they can only be catalogued. The specific cases listed below, taken from major areas of Shang life, will alert the reader to a few of these changes and to the ways in which others may be identified as the occasion arises.

2. *Religion*

Divinations about sacrifice and the ancestors evolved in a variety of ways. For example, divinations about ancestral curses were rare after period I.[1] By period V (if not considerably earlier in some instances), divinations about sacrifice to the various nature powers, such as Ho 河 and Yüeh 岳, had been discontinued;[2] no divinations were recorded about human sacrifice or about *lao* (牢 or 𡧱, "penned cattle or sheep") sacrifice offered to the first twenty-five ancestors in the sacrificial schedule (that is, the ancestors from Shang Chia ① to Hsiao Hsin ㉕);[3] nor were any propitiatory or defensive *yü* 御 rituals divined.[4]

Divinations about offering the five major rituals to the *ta-tsung* ancestors according to a regular schedule first appeared in period IIb, but it was still necessary, on occasion, to determine if performing the ritual according to schedule would be acceptable to the powers. The tentative nature of the sacrificial schedule at this time is demonstrated by the following inscription:

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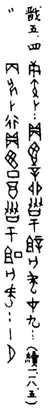
[1] Subcharges (sec. 3.7.4.2) of the form "It is father (mother, brother, grandfather, grandmother) Chia (Yi, Ping, etc.) who is (is not) cursing (the king)" (S82.1–83.1) are, with a few possible exceptions, all from period I.

[2] See table 26, nos. 20, 21. Sacrifices to non-ancestral powers may have been discontinued as early as period IIb. Whether or not they were restored in periods IIIb and IV (as argued, for example, by Yen Yi-p'ing [1961], p. 526) depends on the resolution of the Old School-New School controversy (see ch. 2, n. 18).

[3] These conclusions are based on the inscriptions containing ancestral titles listed at S511.1–533.2.

[4] See the inscriptions listed at S52.3–56.2.



(1) (PREFACE:) Crack-making on keng-yin (day 27), [Hsing] divined:
(CHARGE:) "On the next day, hsin-mao (day 28), perform *hsieh* ritual to Tsu Hsin (K13 ⑲); no curse."
(POSTFACE:) In the ninth month.
(2) (PREFACE:) Crack-making on ping-shen (day 33), Hsing divined:
(CHARGE:) "On the next day, ting-yu (day 34), perform *hsieh* ritual to Tsu Ting (K15 ㉑); no curse."
(POSTFACE:) [In the tenth month.][5]

By period V, the ritual cycle had become so routine that divinations enquiring if one of the five sacrifices should be performed "on the next day" were no longer carried out; such "next-day" divinations for the five regular rituals were not recorded in any period except IIb. The emerging, but not yet fully developed, sense of order which is characteristic of period IIb may also be seen from the following inscribed scapula fragments (fig. 7):

(1) (PREFACE:) [Crack-making] on chi-ssu (day 6), [Hsing] divined:
(CHARGE:) The king [entertains]; performs the *chui* ritual; [no fault].
(POSTFACE:) In the [seventh month].
(2) (PREFACE:) Crack-making on ping-shen (day 33), Hsing divined:
(CHARGE:) The king entertains Pu Ping (K4 ⑩); performs the *hsieh* ritual; no fault.
(POSTFACE:) In the eighth month.
(3) (PREFACE:) Crack-making on hsin-ch'ou (day 38), Hsing divined:
(CHARGE:) The king entertains Ta Chia (K3 ⑨)'s consort, Pi Hsin; performs the *hsieh* ritual; no fault.
(POSTFACE:) In the eighth month.
(4) (PREFACE:) Crack-making on hsin-ch'ou (day 38), Hsing divined:
(CHARGE:) The king entertains; performs the *chui* ritual.
(5) (PREFACE:) Crack-making on jen-yin (day 39), Hsing divined:
(CHARGE:) The king entertains Ta Keng (K5 ⑪)'s consort, Pi Jen; performs the *hsieh* ritual; no fault.
(6) (PREFACE:) Crack-making on jen-yin (day 39), Hsing divined:
(CHARGE:) The king entertains; performs the *chui* ritual; no fault.
(POSTFACE:) In the eighth month.
(7) (PREFACE:) Crack-making on jen-tzu (day 49), Hsing divined:
(CHARGE:) The king entertains Ta Wu (K7 ⑬)'s consort, Pi Jen; performs the *hsieh* ritual; no fault.[6]

The inscriptions move up the bone in orderly sequence, separated by boundary lines (sec. 2.11). The divination record is not fully homogeneous; that is, the *hsieh* ritual to Pu Ping and the two *chui* rituals (the *chui* ritual does not belong to the regular five) intrude in what is otherwise an orderly sequence of rituals addressed to three consorts—recorded in the order of their husband's accession and place in the sacrificial schedule—who receive cult on the cyclical day corresponding to their stem name.

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[5] *Chien-shou 5.4* (S127.3); also reproduced as *Hsü-pien 1.18.5.* I follow Shima's transcription for "tenth month," which I do not see in the rubbings. If, as Takashima (1976) has proposed, it is safe to deduce subordination from context, the presence of two verbs in the charge suggests a conditional construction: "If, on the next day, hsin-mao, we perform *hsieh*-ritual to Tsu Hsin, there will be no curse." But cf. n. 6.

[6] *Chui-hsin 304.* For a good gloss to this inscription and the sacrificial terms, see Ikeda (1964), 1.2.3. It is possible that the charge was conditional: "If the king entertains Pu Ping and performs the *hsieh*-ritual, there will be no fault" (cf. n. 5). But since the divination was performed on the day of the sacrifice (a sacrifice to Pu Ping on ping-shen), it is also possible that the charge was descriptive and hortatory: "The king is entertaining Pu Ping and performing the *hsieh*-ritual, and there will be no fault" (cf. ch. 2, n. 28).

Some period II divinations about the five rituals were fully regular, and entire oracle bones were reserved for this one topic (fig. 18); these inscriptions may thus be regarded as forerunners of period V divinations about the five rituals that all manifest this regularity unfailingly. By the reigns of Ti Yi and Ti Hsin, the ritual schedule had become automatic; the offering of the ritual, its recipient, and its timing were no longer in question; divinations merely stated that the offering would be made or was being made on schedule and expressed in formal incantation the general wish that no fault or misfortune would occur;[7] extraneous divinations never intruded on the bones and shells reserved for the five-ritual divinations of period V (cf. sec. 4.3.1.5).

Other chronological variations, based on more technical aspects of Shang divinations about ritual, may also be established.[8]

3. *Political Activity*

Divinations concerned with political activity and the king's secular interests also reveal marked periodicity. To cite but a few examples: references to the royal women whose names were prefixed with *fu* 婦 generally appear only in period I inscriptions and those of the Royal Family group.[9] Certain groups of officers, such as *wo shih* 我使, "our envoys," are recorded only in period I inscriptions.[10] The names of diviners, even when recorded in the charges and not used as diviners' names, are frequently limited to the same periods as those of the diviners themselves.[11] Divinations seeking to determine if a certain person or group would *hsieh wang shih* 叶王事, "assist the king's affairs," occur mainly in period I, with a few possible cases in periods II to IV.[12] Divinations about *tso yi* 作邑, "building a settlement," or about *tzu yi* 兹邑, "this settlement," occur only in

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[7] E.g., *Hou-pien 1.2.12* and other inscriptions listed at S494.2. The *yu* of the phrase *wang yu* 亡尤 appears to combine the senses of fault and misfortune.

[8] For example, period V charges about the *yung*, *yi*, and *hsieh* rituals invariably add the graph for "day" (*jih* 日, but always written ◫; see table 26, no. 10b) after the ritual name; this is found in no other period. See the inscriptions listed at S493.4–494.2; 250.4–251.2; 128.1–2. *Hou-pien 1.3.12* (S128.1) is a typical example: "(Preface:) Crack-making on chi-hai (day 36), divined: (Charge:) 'The king entertains Tsu Ting's (K15 ㉑) consort, Pi Chi; performs the *hsieh*-day ritual; no fault.'" (The days of these three rituals were used as calendrical markers in late Shang bronze inscriptions; for examples see Akatsuka [1955], pp. 37, 38, 39, 40, together with the ten other cases listed on p. 5 of his index; see too Matsumaru [1970], pp. 65–66, nos. 2–7.) Period V divinations may also be distinguished from those of IIb by the occurrence of two or more rituals recorded in the postface (e.g., *Chin-chang 518* [D], translated in sec. 4.3.1.7); inscriptions of this form do not appear in periods I to IV.

[9] See the inscriptions listed at S436.2–437.1; cf. Tung (1965), pp. 91–92. Shima (1958), pp. 452–454, lists eighty-six cases of the combination *fu-mou* 婦某; cf. Chou Hung-hsiang (1970/71), p. 360. Chou's view (pp. 351, 354, 356) that *fu-mou* also appeared in IV or V is not supported by the evidence he cites. On the status of the royal women, see ch. 1, n. 70.

[10] See the inscriptions listed at S421.1.

[11] For example, when Ch'üeh (S414.3), Cheng (S100.2), Hsüan (S314.4–315.2), and Chung (S420.3–4), the names of period I diviners, appear in charges, the inscriptions may also be dated to period I. The significance of this will be considered in *Studies*.

[12] See the inscriptions listed at S124.4–125.2; the possible III + IV exceptions are *Chien-shou 46.3*; *Ching-chin 4777*; *Nan-pei*, "Ming" 472 (D). The phrase, *hsieh wo shih* 叶我事, "assist our affairs" (S152.2), occurs only in period I.

period I or in Royal Family group inscriptions; divinations about *ta yi Shang* 大邑商, "the great settlement Shang," or *t'ien yi Shang* 天邑商, "the heavenly settlement Shang," occur only in period V.[13]

4. *Warfare and the Hunt*

In the realm of military affairs, references to Chih Kuo, the Shang general or ally, appear only in period I,[14] as do divinations about following or allying with other leaders or statelets.[15] Divinations ending with the phrase *wo shou yu* 我受又 (= 祐), "we will receive (ultrahuman) assistance," appear only in period I.[16] Divinations about the Shang king raising men rarely appear after period I.[17] Divinations about "the three hundred archers" or "the many archers" were recorded only in period I and in Royal Family group inscriptions,[18] as was the phrase *shih jen* 使人, "to send men."[19] Divinations about 乚 羌, "taking (captured) Ch'iang," generally occur in periods III + IV; they do not occur in I or II.[20] The enemy statelet of the T'u-fang 土方 was divined about only in period I;[21] the Kung(?)-fang 𢀛方 appear in period I and occasionally in period II;[22] references to the Chou 周 appear mainly in period I and occasionally in periods II to IV;[23] references to the Yü-fang 盂方 occur only in period V and are all concerned with Ti Hsin's campaigns against that statelet.[24]

In the related activity of hunting, the verb varied with time. *Shou* 狩 was commonly used in period I and more rarely in periods II to IV; it was no longer used in V. *T'ien* 田, "to take the field," hence "to hunt," was used rarely in I but was common in periods II to V.[25] The compound

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[13] See the inscriptions listed at S43.1–3; 279.2–3.

[14] See the inscriptions listed at S65.4–67.1; for Chih Kuo, see ch. 3, n. 104.

[15] See the inscriptions listed at S20.3–21.4.

[16] See the inscriptions listed at S351.3–352.1; cf. n. 32.

[17] See the inscriptions listed at S1.1–3 (but cf. ch. 3, n. 38). I would propose period II datings for *Chin-chang* 601 (D); *Nan-pei*, "Ming" 188 (D); *Pu-tz'u*, 131.

[18] See the inscriptions listed at S378.1–2.

[19] See the inscriptions listed at S1.3–4. *Ch'ien-pien* 8.2.5 (S1.4) is a possible exception; the small calligraphy indicates a period V date, but the bone is fragmentary, and it is not certain that the phrase *shih jen* is present.

[20] See the inscriptions listed at S503.2. On the meaning of 乚, an early form of *yi* 㠯 (以), see *CKWT*, pp. 4371–4373.

[21] See the inscriptions listed at S171.3–172.2; cf. Ch'en Meng-chia (1956), pp. 272–273; Tung (1965), p. 90.

[22] See the inscriptions listed at S129.2–132.1; cf. Ch'en Meng-chia (1956), p. 273; Tung (1965), p. 90.

[23] See the inscriptions listed at S299.3–300.1. Shima (1958), p. 409, cites *T'ung-tsuan*, "Pieh" 2.VII.5 and *Yi-chu* 90 as period II inscriptions referring to Chou. He lists seven period IVb inscriptions, but I would date only one of those, *Shih-to* 2.82, to III + IV; the rest are either RFG or, in my opinion, undatable. It is a curious fact that though the Chou overthrew the Shang, they are recorded in no period V inscription now available to us.

[24] See the inscriptions listed at S387.3; cf. Ch'en Meng-chia (1956), pp. 309–310. Ch'en, pp. 269–310, gives a period-by-period account of the various statelets that appear in the inscriptions. On the ways in which period Va and Vb inscriptions may or may not be distinguished, see Tung (1945), pt. 1, ch. 3, p. 2a; Ch'ü Wan-li (1948), p. 225; Ch'en Meng-chia (1955), p. 59.

[25] See the inscriptions listed at S445.4–447.1; 289.3–298.2. According to Tung (1965), p. 98, *t'ien* was used in periods II, III, IVa, and V, and *shou* was used in I and IVb. But I know of no inscription containing *shou* which can be dated unequivocally to IVb, and I suspect that the inscriptions (unspecified) which he so assigns should be dated rather to the RFG or period III + IV. It seems that *t'ien* (on the meanings of this word, see sec. 3.6.3) and *shou* were not exact synonyms, for in III + IV they were used jointly in four inscriptions (S446.1; e.g., *Chia-pien* 1656; *Ching-chin* 4418). The meaning of this compound *t'ien-shou*, "to take the field and hunt (?)," eventually may have come to be assumed by *t'ien* alone.

chu huo 逐獲, "pursue and catch," was used only in period I, as was the verification phrase *yün huo* 允獲, "(we) really caught."[26] References to the king shooting game with bow and arrow appear only in periods III + IV.[27] Similarly, divinations about *t'ien-hsing* 田省, "hunting and inspecting," in a particular region—which document the political role of the royal hunts—have only been found for period III + IV.[28] The regions in which the king hunted also varied by period. Divinations about hunting at Chi 雞, for example, appear only in III + IV, at Sang 喪 in III to V.[29]

5. *Weather*

The weather was a major concern of the Shang. Divinations about the king "encountering great rain" (*kou ta yü* 遘大雨) or "encountering great wind" (*kou ta feng* 遘大風), which would affect his hunts and travels, appear mainly in periods II to V.[30] Divinations about whether or not there would be sun appear in periods I to IV and in the inscriptions of the Royal Family group, but never in period V.[31] Divinations about "receiving harvest" were made throughout the historical period, but with certain variations in the formula that provide useful dating criteria.[32] One of the disaster words—thought to refer to drought or dearth—appears only in period I inscriptions.[33]

6. *Other Criteria*

An almost endless variety of miscellaneous idioms and graphs reveal periodicities that may assist us. Words for recording the time of day, the word for consort, disaster formulas, and

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[26] See the inscriptions listed at S230.2–3; 489.3–4.

[27] See the inscriptions listed at S378.4–379.1. Tung (1965), p. 93 (note that Tung [1964], pp. 82–84, consistently misprints Wu Ting for Wu Yi), dated all these inscriptions to period IVa. This precision was perhaps based upon Tung's desire to find the various classical references (which he cites) to king Wu Yi's hunting prowess confirmed by the period IVa oracle inscriptions. I find no firm epigraphic or calligraphic justification for a IVa date; Ch'ü Wan-li, in fact, dates the relevant *Chia-pien* inscriptions to period III.

[28] See the inscriptions listed at S103.2–4. The first three inscriptions are dated to period I; I take the first two (*Pu-tz'u* 203 and *T'ieh-yün* 114.4) to be an abbreviated or fragmented version of the formula found in the third (*Ch'ien-pien 5.26.1*): *hsing wo t'ien* 省我田, "inspect our fields." Other scholars have taken the period III + IV phrase *hsing t'ien* to mean "inspect the hunt" (e.g., *Chia-pien* 1651, *k'ao-shih*, p. 218; *Jimbun* 1996, *shakubun*, p. 504). This is possible, but it fails to account for the fact that the words are frequently reversed, *t'ien hsing*. Other divinations contain the phrases *wang hsing* 往省, "go to inspect," and *wang t'ien* 往田, "go to hunt" (S76.4–77.4); the fact that *wang hsing* was not used after period I suggests that this topic came to be incorporated in the *hsing-t'ien*, "inspect and hunt," or *t'ien-hsing*, "hunt and inspect," divinations of III + IV.

[29] See the inscriptions listed at S469.1; 191.2–4.

[30] See the inscriptions listed at S169.3; 234.1–3; 455.3; 457.2. Yen Yi-p'ing (1961), p. 536, gives various other rules about the idiom and the context of rain divinations, but I question their accuracy.

[31] See the inscriptions listed at S494.4–496.3.

[32] Charges containing the phrases *wo shou nien* 我受年, "we will receive harvest" (fig. 8), were recorded only in period I (S195.2–196.1). In periods III to V, *shou nien* was replaced by the analogous phrase *shou ho* 受禾 (S192.4–193.1). For related epigraphic changes, see table 26, no. 4.3.

[33] The graph (S38.1–3) has been variously interpreted as *chin* 饉, *han* 暵, etc. See Shima (1958), p. 192; *CKWT*, pp. 4013–4018; Mickel (1976), pp. 158–168.

so on are all grist for the mill of the periodizer.[34] It would be pointless to provide further examples of this sort here. The relevant criteria may be developed as the occasion arises by consulting the entries in Shima's *Sōrui* (sec. 3.3.2), by applying the primary and secondary criteria developed in chapter 4, and by consulting the opinions of other scholars (sec. 4.1.1). No date is entirely firm unless established by the primary criterion of an ancestral title. Many dates offered by scholars, in fact, depend upon nothing stronger than stylistic or formulaic analogies which may always be questioned and, if necessary, rejected. Needless to say, future discovery and publication of fresh stores of oracle bones is likely to alter our view of how the inscriptions evolved.[35]

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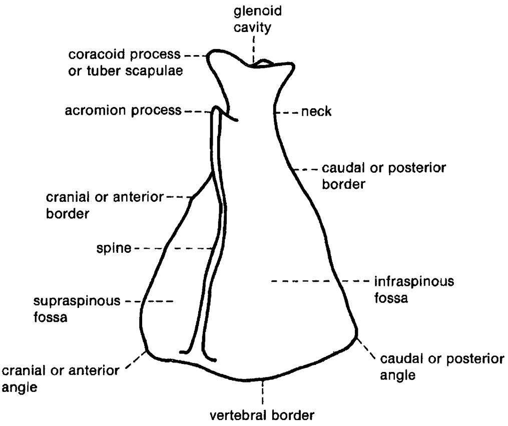
[34] *Time words:* The word *t'ou*, used either to indicate the period between two cyclical days or as a sacrifice term (see ch. 2, n. 79), appears only in period I and RFG inscriptions (S402.3–403.2). The time phrases *ta-ts'ai* 大采 and *hsiao-ts'ai* 小采, referring approximately to 8 A.M. and 6 P.M. respectively (Tung [1962a], pp. 411–412), appear only in period I and RFG inscriptions (S188.2–3; 497.1), as does the word (=*tse* 昃 ?), "afternoon" (S39.1–2). With the exception of its occurrence in the phrase (=*lai ch'un* [?] 來春 [?]), "the coming season (?)," where it also appears in period II, the time word and its variants appear only in period I (S187.2–188.1; cf. Ch'en Meng-chia [1956], pp. 227–228; on the meaning of this word, see ch. 3, n. 85). *Consort:* The graph , used in divinations about sacrifice to refer to the royal consorts (e.g., *Chui-hsin* 304 [fig. 7], translated in appendix 5, sec. 2), appears in various epigraphic forms from period IIb to V, but never in period I (S34.4–35.4). *Disaster formulas:* In the routine ten-day divinations followed by sacrifice dates in the postface (see sec. 4.3.1.7), the king is recorded as the subject of the charge only in period V; in periods II through IV, and occasionally in V (e.g., *Ch'ien-pien 2.14.1+4.28.1; Hsü-pien 1.51.2*) [both S168.2]), the subject is always implied. Thus we see a shift in the position of the graph for "king," the earlier formula being *wang *tieng hsün wang huo*, "the king divined: 'In the (next) ten days there will be no disaster,'" the period V formula being **tieng wang hsün wang huo*, "divined: 'the king in the (next) ten days will have no disaster'" (S166.2–168.2).

[35] Our understanding of period IV in particular, for which we have so few firmly dated, attested inscriptions (see ch. 4, n. 62), may be considerably revised. The majority of the over 4,800 inscribed bone and shell fragments excavated south of Hsiao-t'un in 1973 is said to come from periods IVa, IIIb, and, less numerous, IVb (*KK* [1975.1], p. 39); it will be interesting to see the basis for these dates and the information to be gained from the inscriptions.

Figures


glenoid cavity
coracoid process or tuber scapulae
acromion process
neck
caudal or posterior border
cranial or anterior border
spine
infraspinous fossa
supraspinous fossa
cranial or anterior angle
caudal or posterior angle
vertebral border

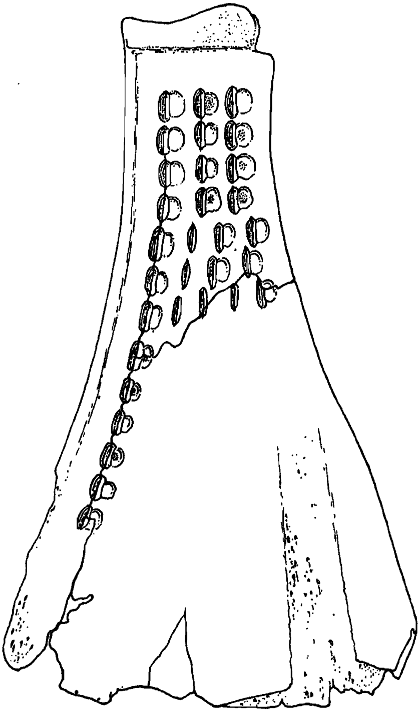
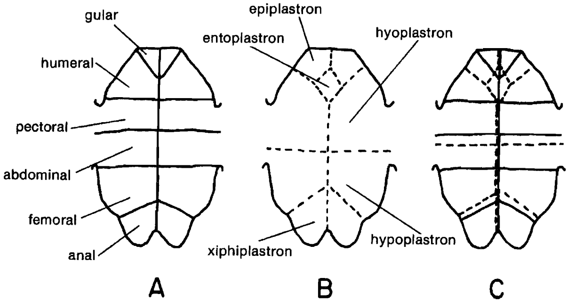


Fig. 1. (*Above*) Technical nomenclature of the bovid scapula.

Fig. 2. (*Left*) A Prepared Scapula (*ROM* 931.52.1007). Reduced 61 percent. Reprinted, by permission, from *Bone*, p. 76.

Fig. 3. (*Below*) Technical nomenclature of the turtle plastron. A epidermal scutes, B bony shell, C epidermal scutes (unbroken line) and bony shell (dotted line) superimposed.



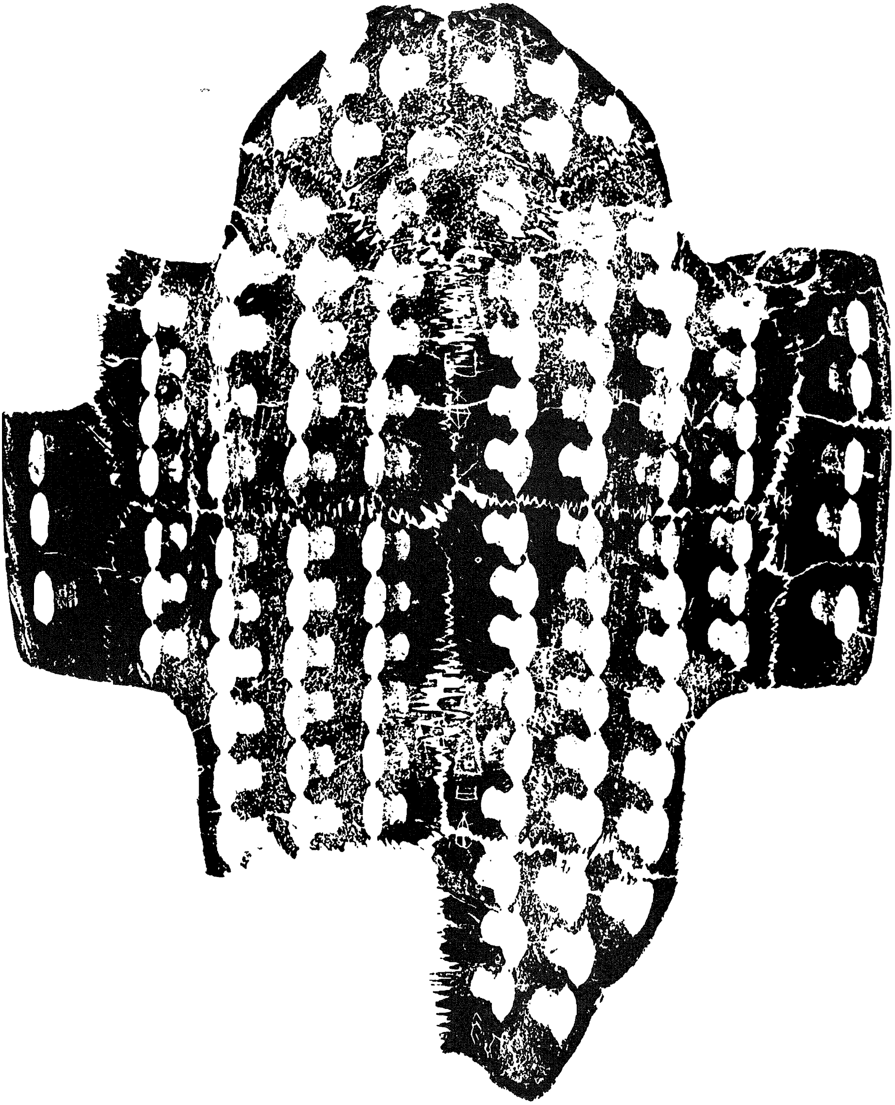


Fig. 4. Symmetrical arrangement of double hollows on a plastron (*Ping-pien* 135;

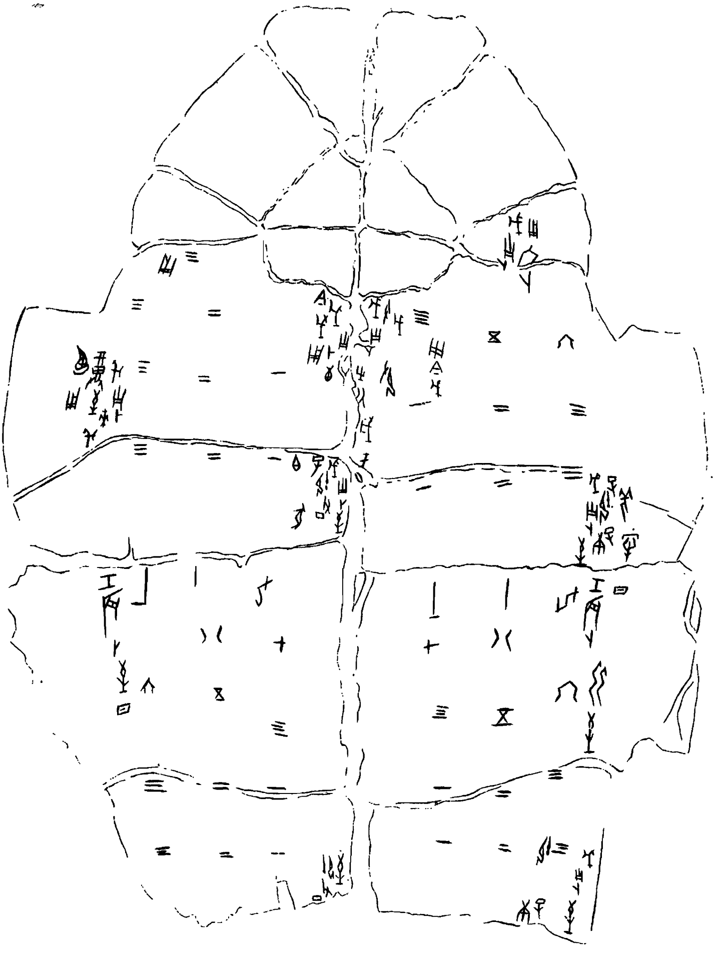


Fig. 5. *Yi-pien* 5399. Reduced 13 percent. Reprinted, by permission, from Yen Yi-p'ing (1961), 1.

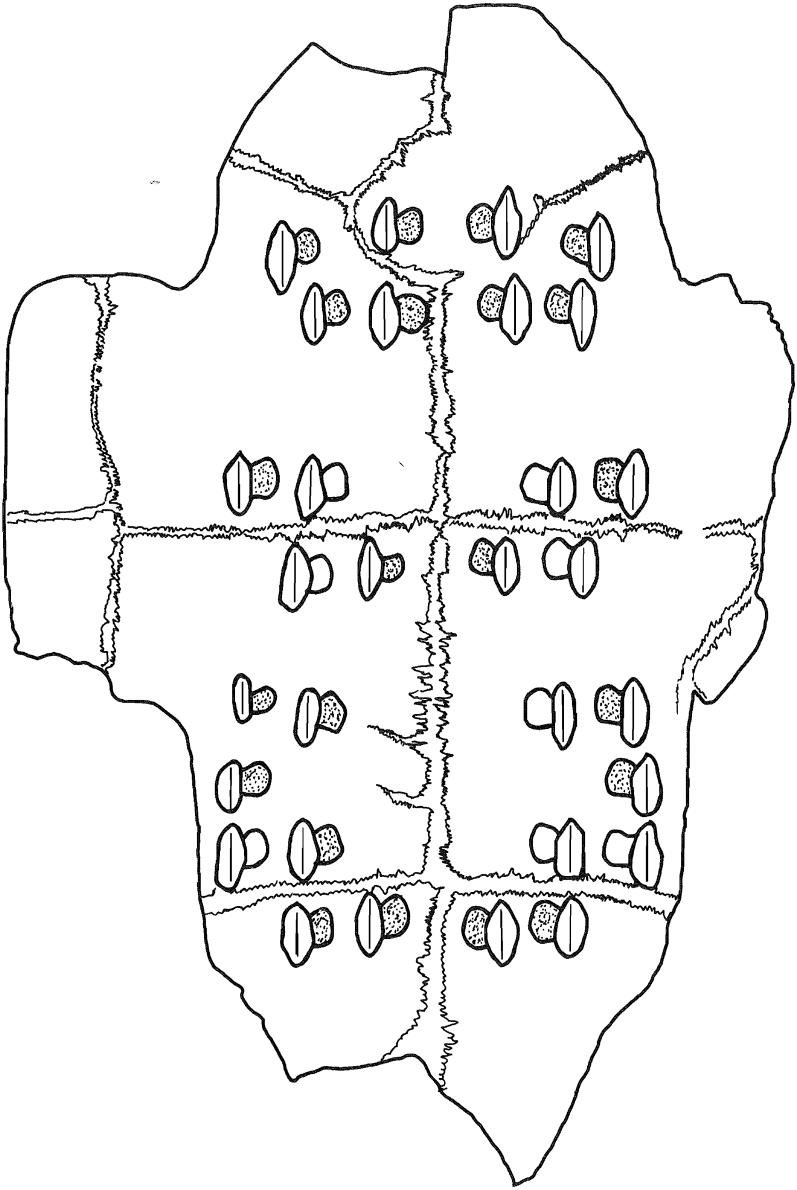


Fig. 6. Burned and unburned double hollows on a plastron (*Ping-pien* 58). Reduced 19 percent. The burned hollows are indicated by stippling. The bottom two hollows in the right-hand column on the left hypoplastron were burned but no crack-numbers were incised by the cracks. For a discussion, see

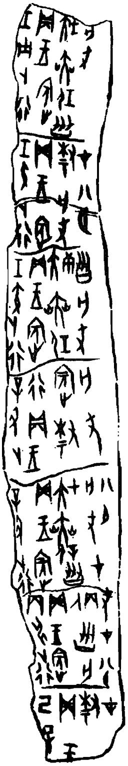


Fig. 7. A period II divination
about the ancestral rituals (*Chui-hsin 304*).
For a translation, see appendix 5, sec. 2. Reprinted with permission.

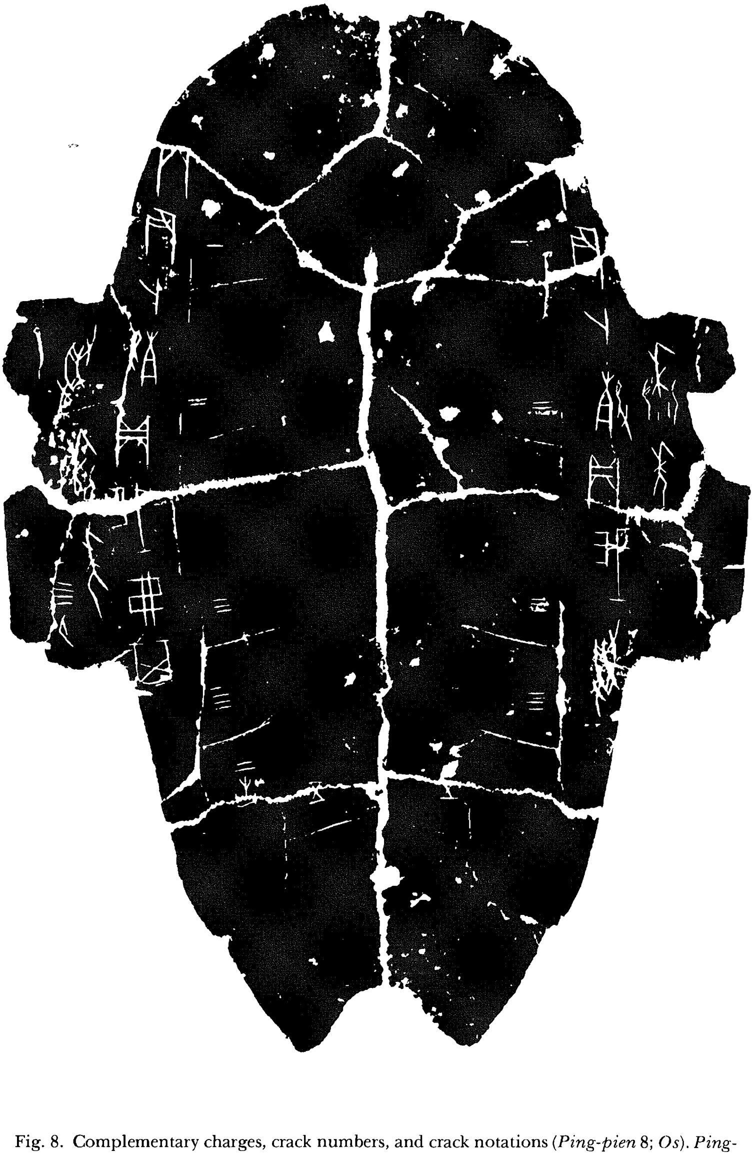


Fig. 8. Complementary charges, crack numbers, and crack notations (*Ping-pien* 8; *Os*). *Ping-pien* 8.1 on the right reads: "(Preface:) Crack-making on ping-ch'en (day 53), Ch'üeh divining: '(Charge:) We will receive millet harvest.'" The complementary charge on the left (*Ping-pien* 8.2) reads: "We will not perhaps receive millet harvest." The postface reads: "(In) the fourth month." Reprinted with permission of the Academia Sinica.

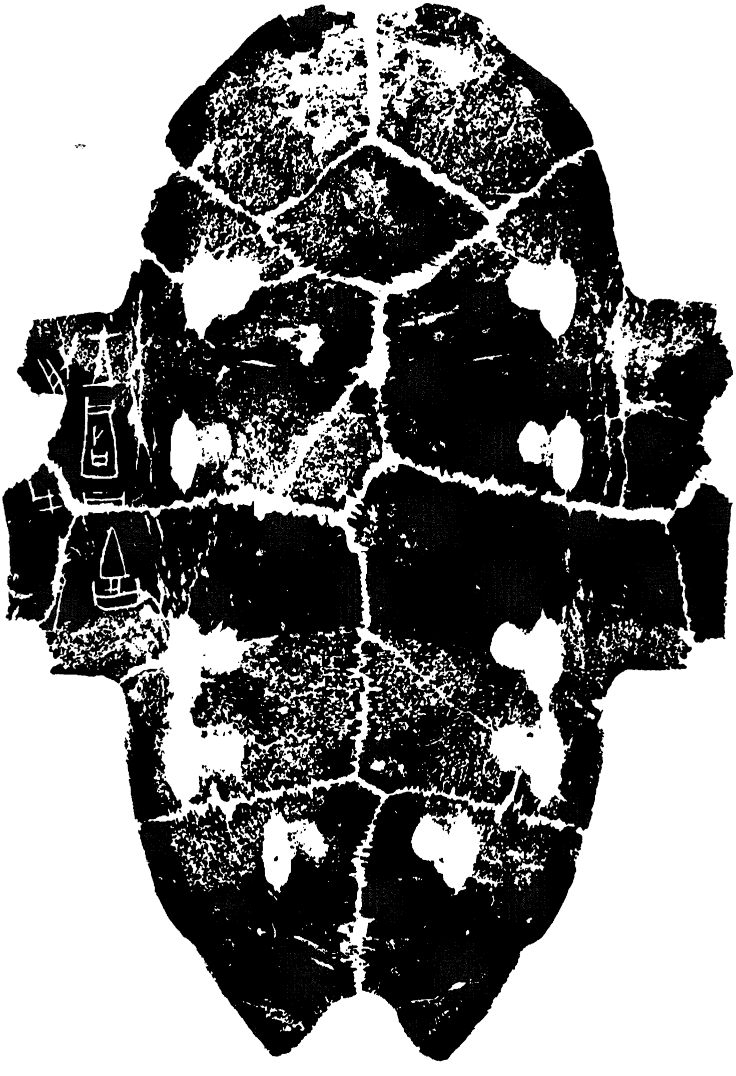


Fig. 9. The back of a plastron (*Ping-pien* 9; *Os*; the back of *Ping-pien* 8 [fig. 8]). The inscription reads: "The king, reading the cracks, said: 'Auspicious. We will receive this harvest.'" On the phrase *shou yu nien*, see ch. 3, n. 85.

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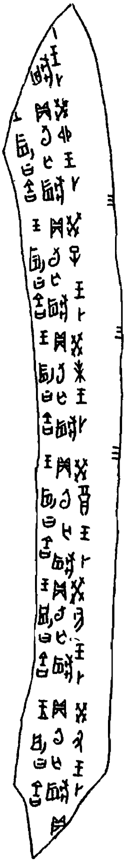

Fig. 10. Typical period V inscriptions (*Hsü-ts'un 2.972* [D]). The bottom inscription reads: "(Preface:) On kuei-ch'ou (day 50) the king made cracks and divined: '(Charge:) In the (next) ten days there will be no disaster.' (Prognostication:) The king, reading the cracks, said: 'Auspicious.'" The other inscriptions are identical. Moving up the bone, they record the ten-day divinations and auspicious prognostications made on kuei-hai (day 60), kuei-yu (day 10), kuei-wei (day 20), kuei-chi (day 30), kuei-mao (day 40), and, partly missing, kuei-ch'ou (day 50).

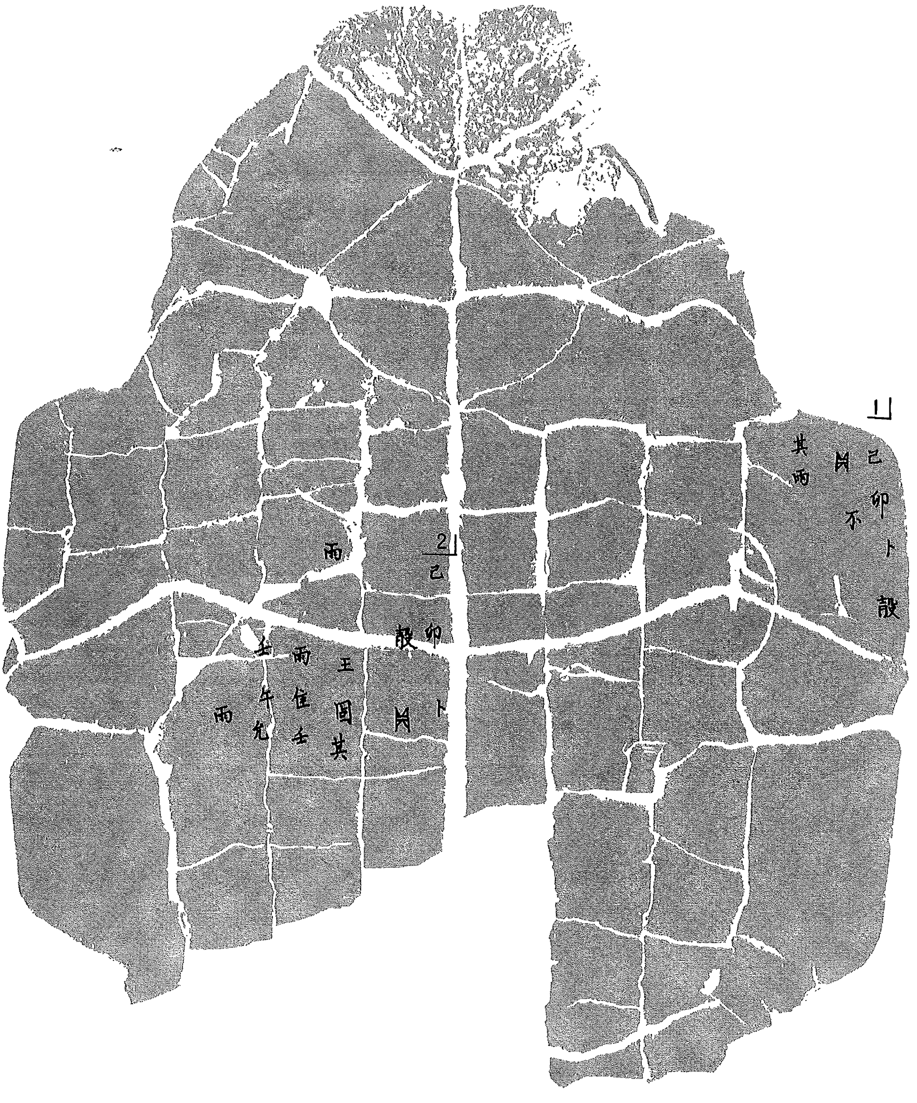

Fig. 11. Modern graphs. For a translation of *Ping-pien* 235.1-2, see sec. 2.8.

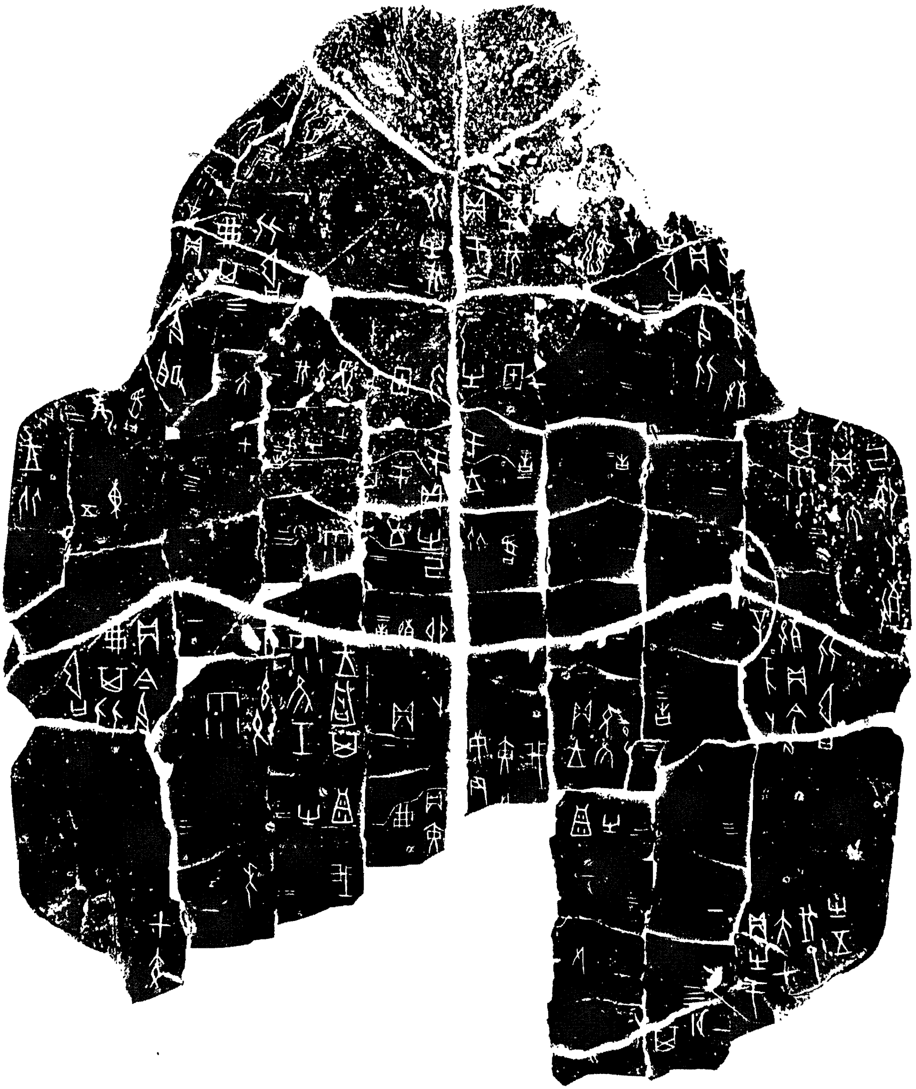

Fig. 11. A complete inscription unit and complementary charges (*Ping-pien* 235).

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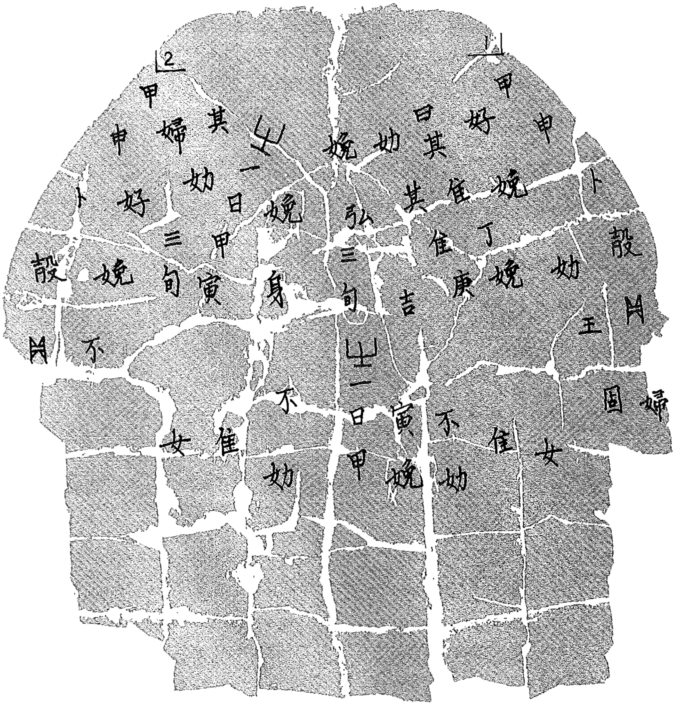

Fig. 12. Modern graphs. *Ping-pien* 247.1: "(Preface:) Crack-making on chia-shen (day 21), Ch'üeh divined: '(Charge:) Fu Hao's childbearing will be good.' (Prognostication:) The king, reading the cracks, said: 'If it be a ting day childbearing, it will be good. If it be a keng day childbearing it will be extremely auspicious.' (Verification:) On the thirty-first day, chia-yin (day 51), she gave birth. It was not good. It was a girl." *Ping-pien* 247.2: "(Preface:) Crack-making on chia-shen (day 21), Ch'üeh divined: '(Charge:) Fu Hao's childbearing will not perhaps be good.' (Verification:) On the thirty-first day, chia-yin (day 51), she bore a body (?). It was not good. It was a girl."

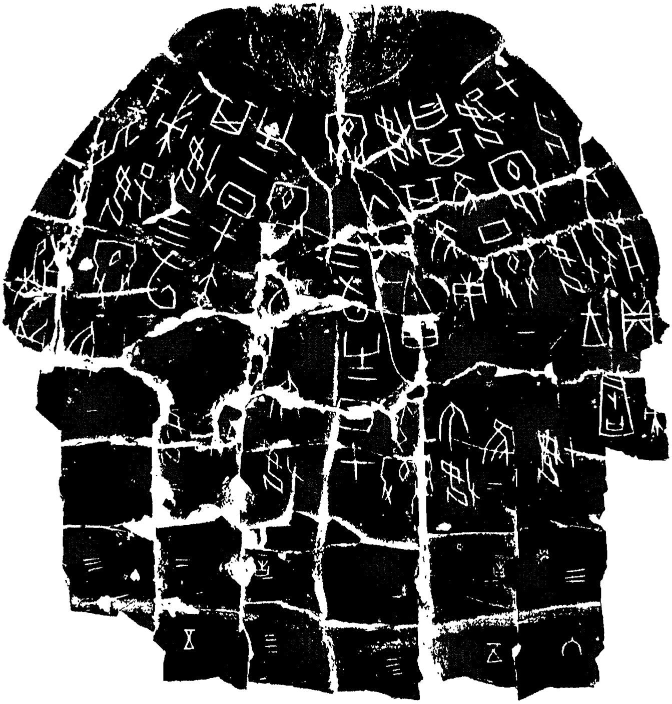

Fig. 12. A period I display inscription (*Ping-pien 247*).

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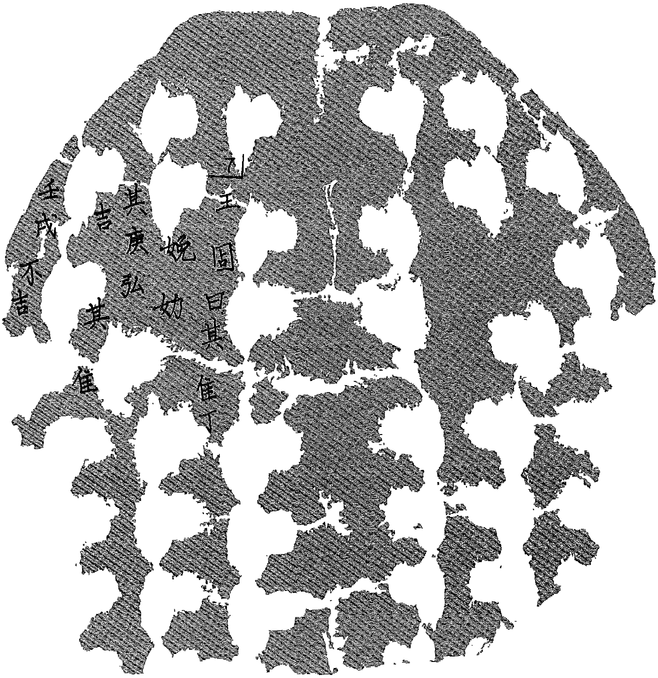

Fig. 13. Modern graphs. For a translation of *Ping-pien* 248.7, see sec. 2.7

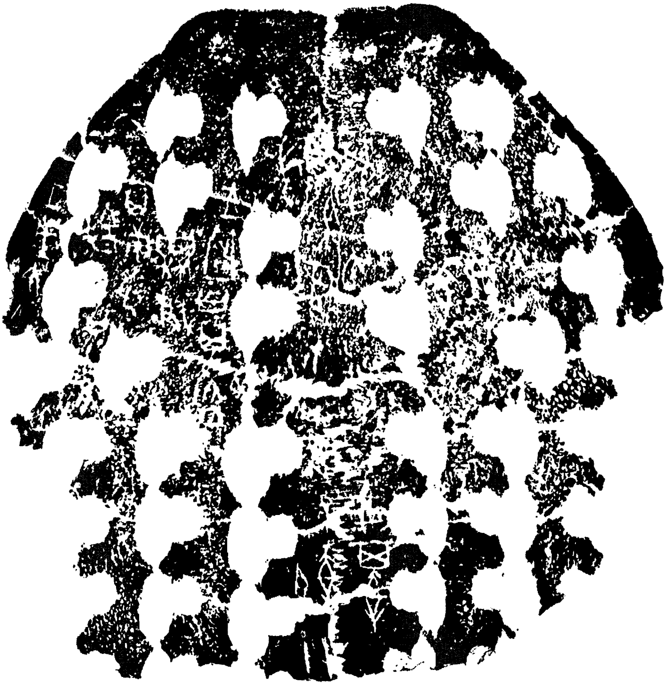

Fig. 13. A specific period I prognostication (*Ping-pien 248*; the back of *Ping-pien 247* [fig. 12]). Reprinted with permission of the Academia Sinica.

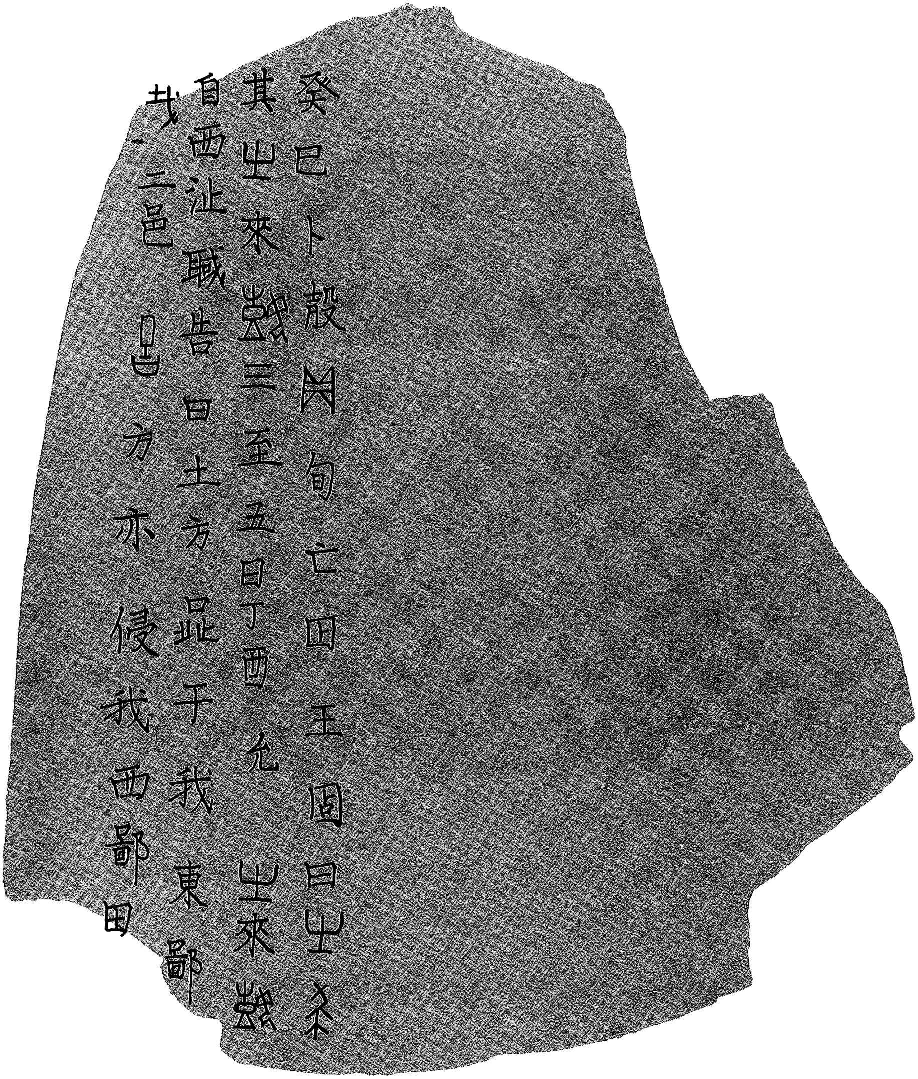
癸巳卜殼貞旬亡田王固曰㞢杀
其㞢來艱三至五日丁酉允㞢來艱
自西沚職告曰土方征于我東鄙
𢦏二邑𢀛方亦侵我西鄙田

Fig. 14. Modern graphs. For a translation see sec. 2.8.

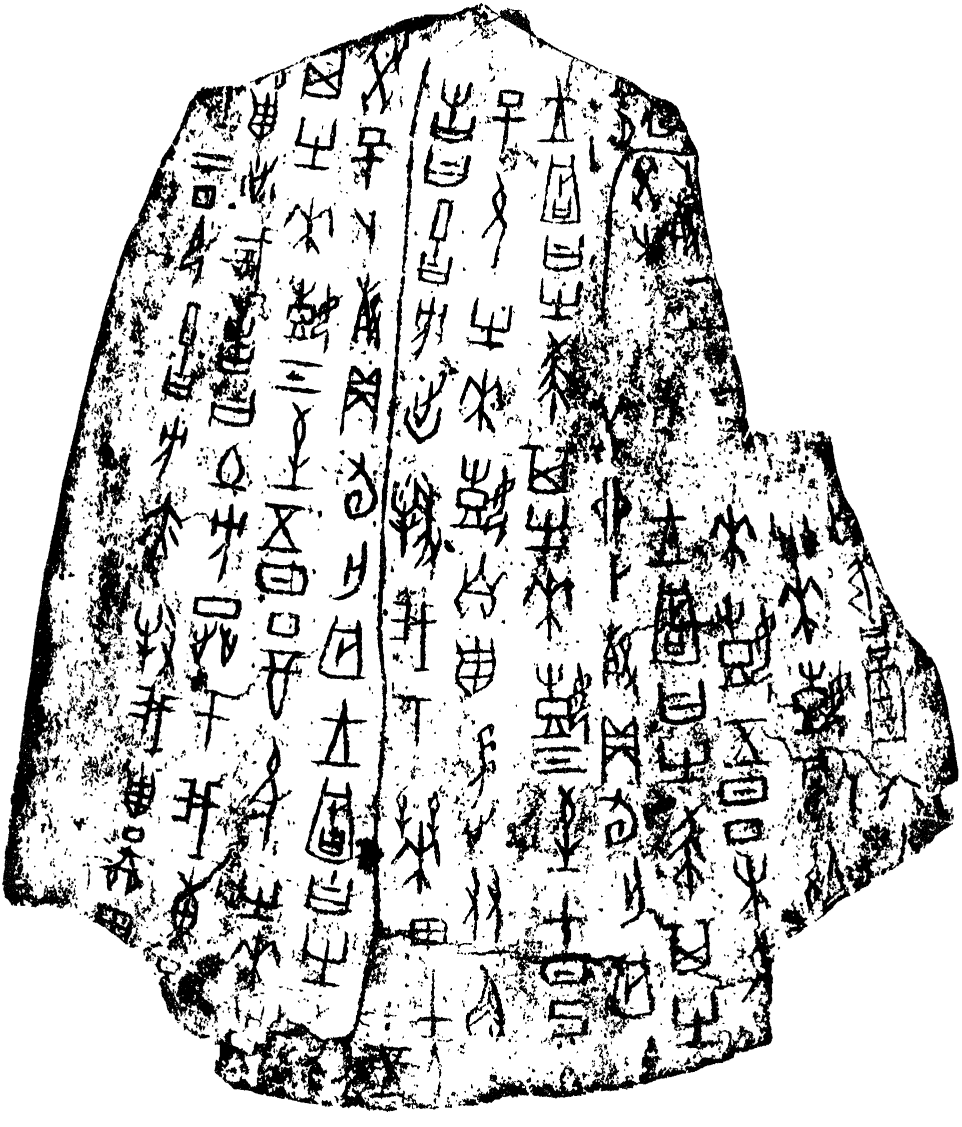

Fig. 14. A period I display inscription with detailed verification (*Ching-hua 2*).

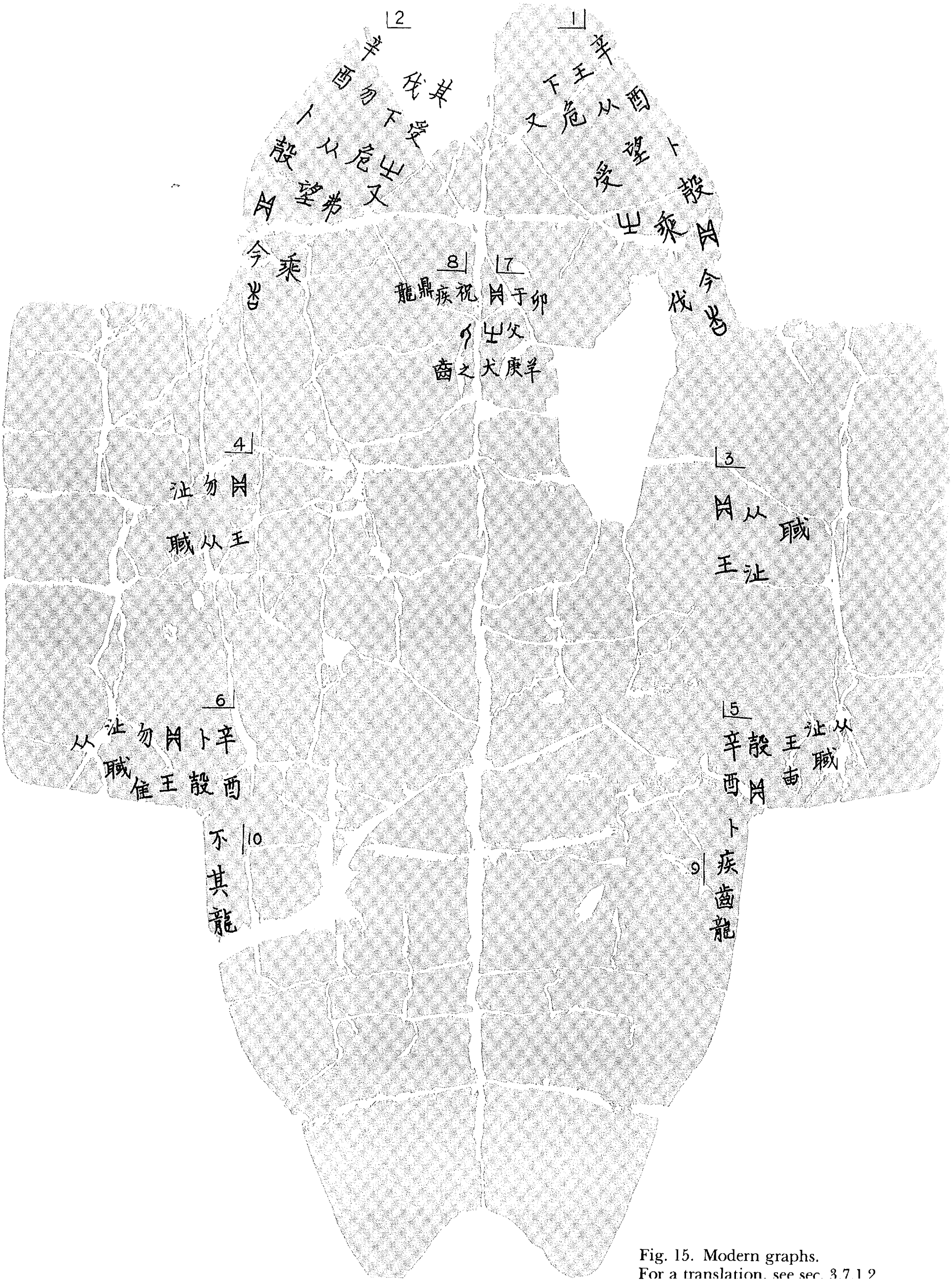

Fig. 15. Modern graphs.
For a translation, see sec. 3.7.1.2

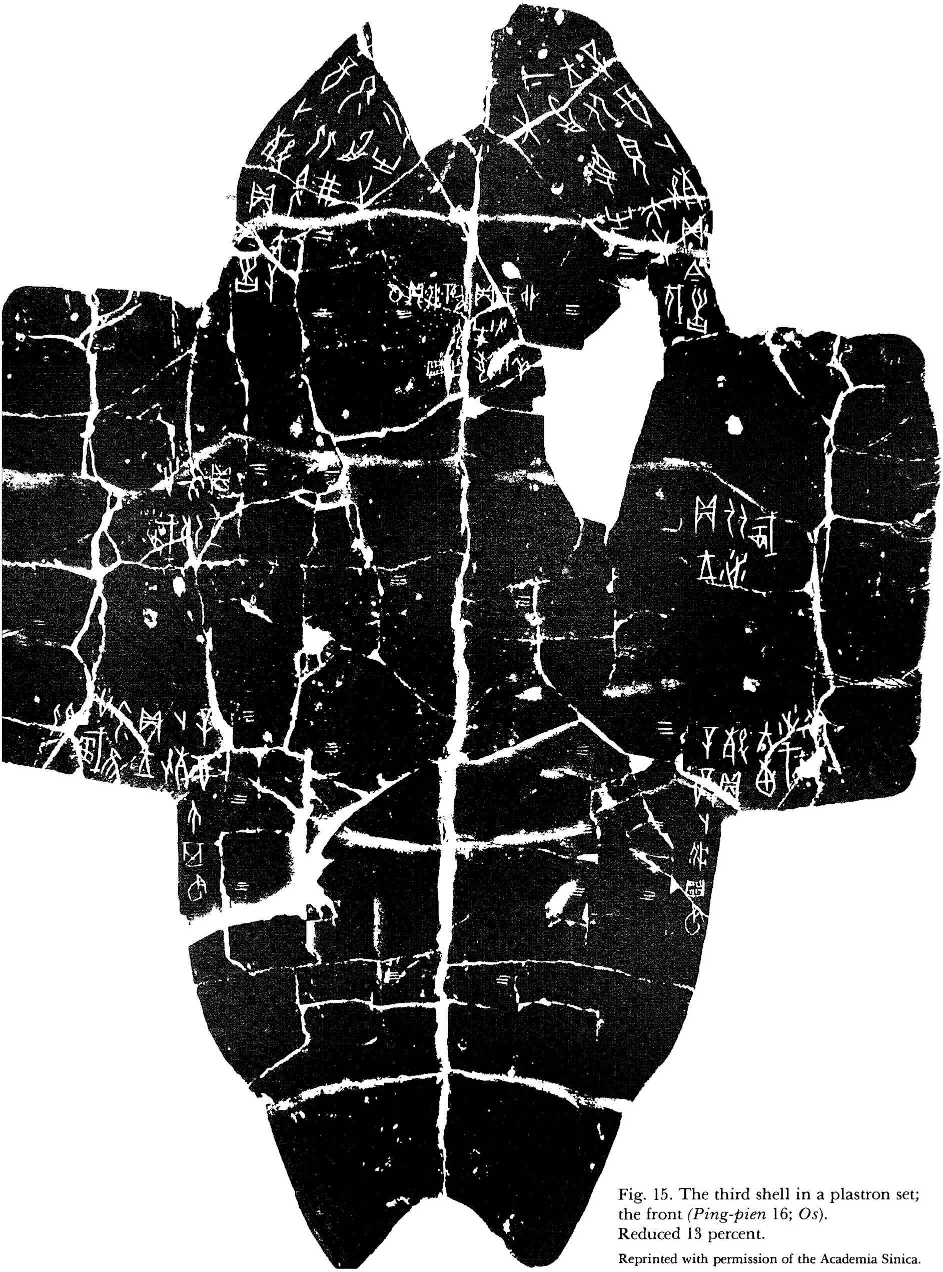

Fig. 15. The third shell in a plastron set; the front *(Ping-pien* 16; *Os).* Reduced 13 percent.

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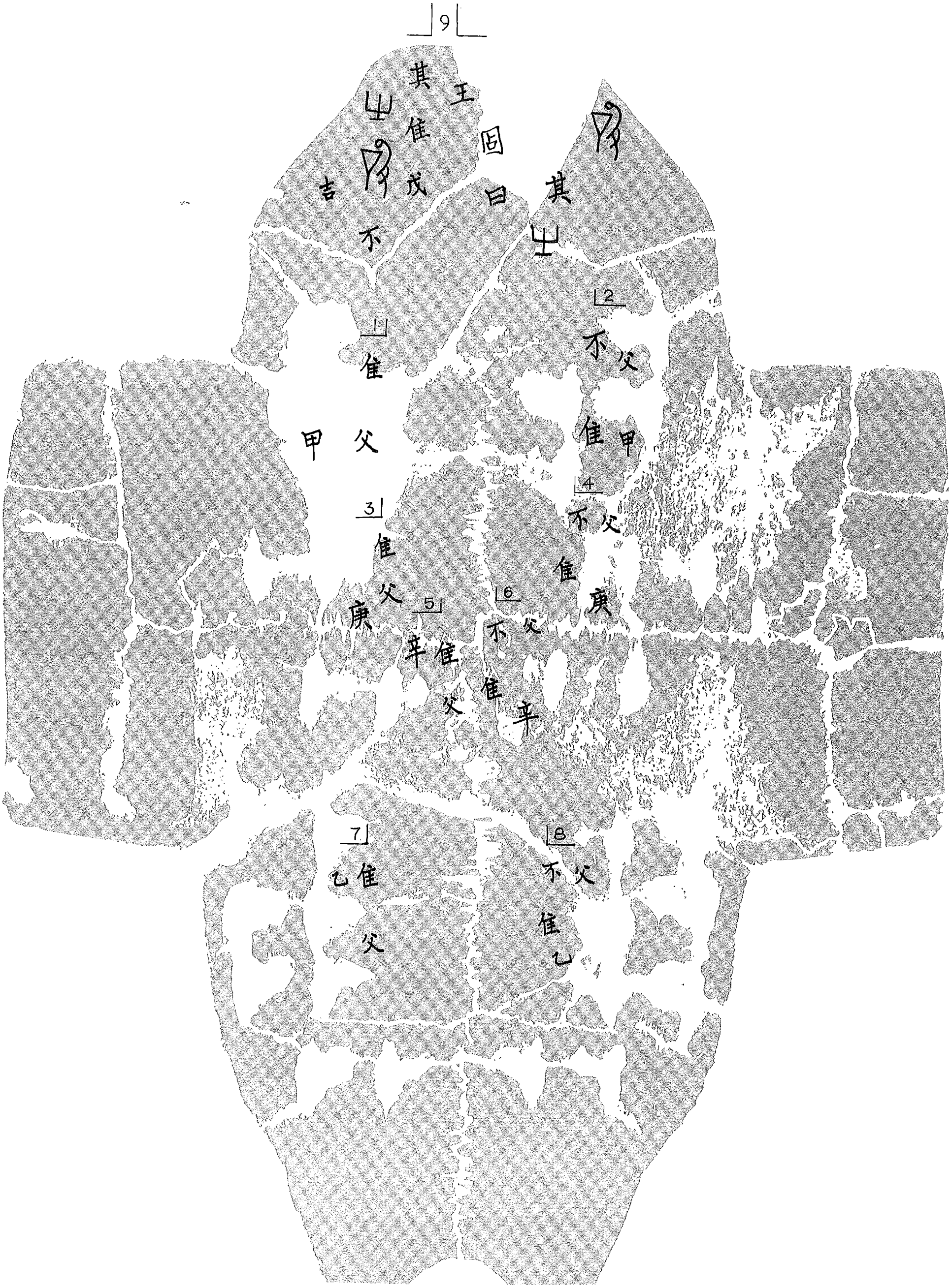
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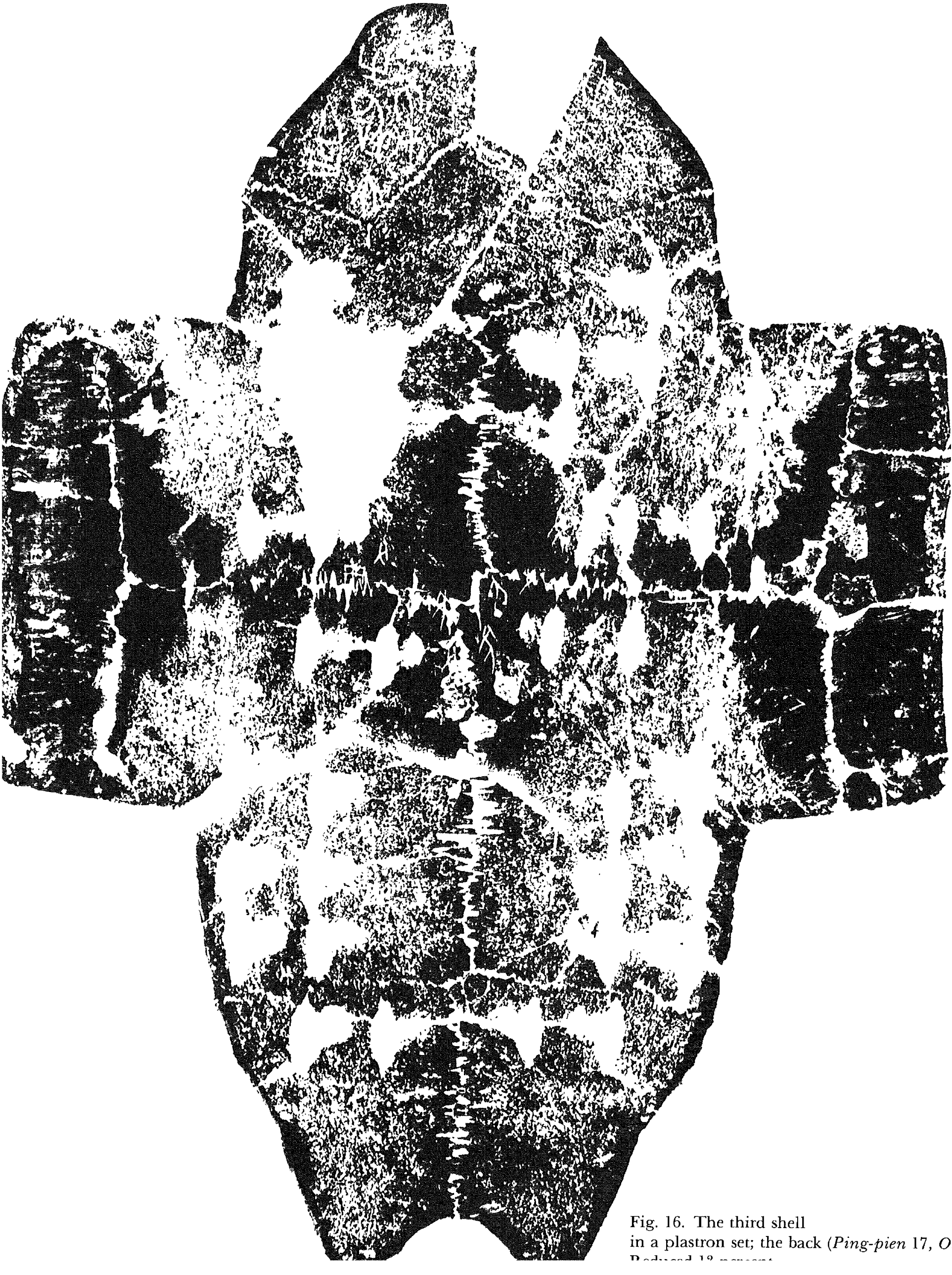

Fig. 16. The third shell
in a plastron set; the back (*Ping-pien* 17, *Os*).
Reduced 1[illegible] percent

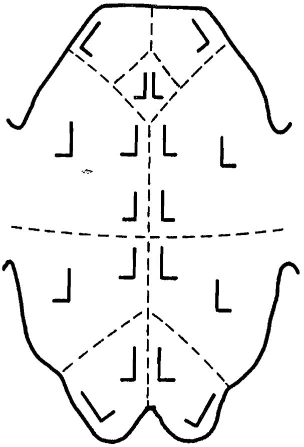

Fig. 17. (*Above*) Ideal placement of inscriptions on a plastron. For the meaning of the L-shaped symbol, see sec. 5.6.

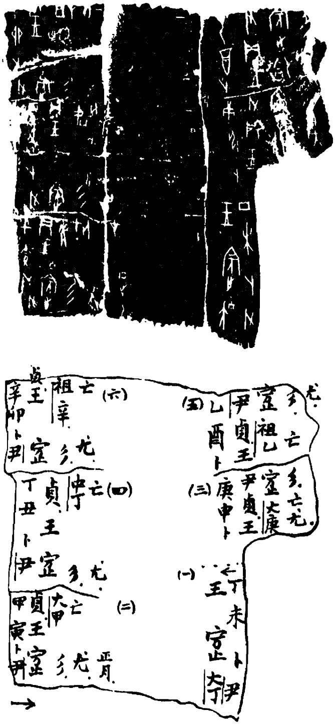

Fig. 18. (*Above, right*) A period II five-ritual divination (*Ts'ui-pien 176*). *Ts'ui-pien* 176.1: "(Preface:) Crack-making on ting-wei (day 44), Yin [divined]: '(Charge:) The king entertains Ta Ting (K2); [performs the *yung* ritual; no fault].'" *Ts'ui-pien* 176.2: "(Preface:) Crack-making on chia-yin (day 51), Yin divined: '(Charge:) The king entertains Ta Chia (K3); performs the *yung* ritual; no fault.' (Postface:) In the first month." *Ts'ui-pien* 176.3: "(Preface:) Crack-making on keng-shen (day 57), Yin divined: '(Charge:) The king entertains Ta Keng (K5); performs the *yung* ritual; no fault.'" *Ts'ui-pien* 176.4: "(Preface:) Crack-making on ting-ch'ou (day 14), Yin divined: '(Charge:) The king entertains Chung Ting (K9); performs the *yung* ritual; no fault.'" *Ts'ui-pien* 176.5: "(Preface:) Crack-making on yi-yu (day 22), Yin divined: '(Charge:) The king entertains Tsu Yi (K12); performs the *yung* ritual; no [fault].'" *Tsui-pien* 176.6: "(Preface:) Crack-making on [hsin]-mao (day 28), Yin [divined]: '(Charge:) The king entertains [Tsu Hsin (K13)]; performs the *yung* ritual; no fault.'"

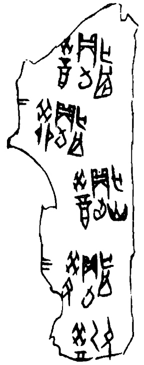

Fig. 19. (*Right*) A phonological clue (*Ts'ui-pien* 1428). For a discussion of this inscription, see sec. 3.5.2.

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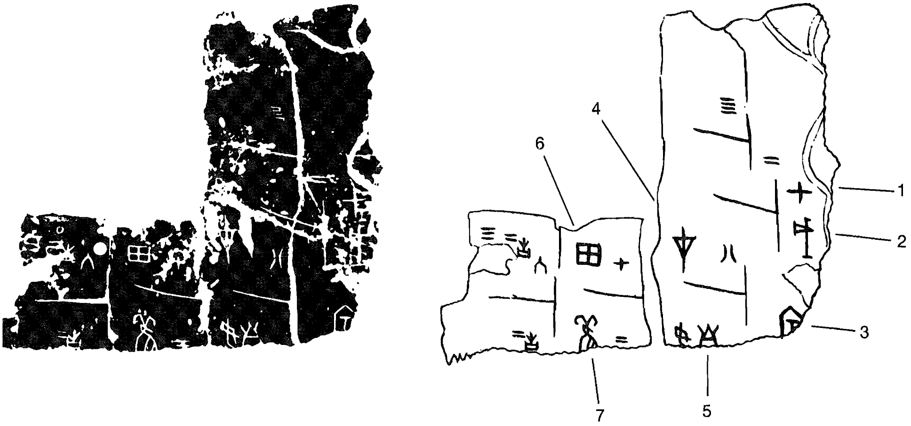


Fig. 20. *Yi-pien* 603 (*left*) + 605 (*right*). For a translation, see sec. 3.6.3.

The drawing is reprinted, by permission, from Tung (1964a). The rubbing, taken from *Ping-pien* 390, is reprinted with permission of the Academia Sinica.

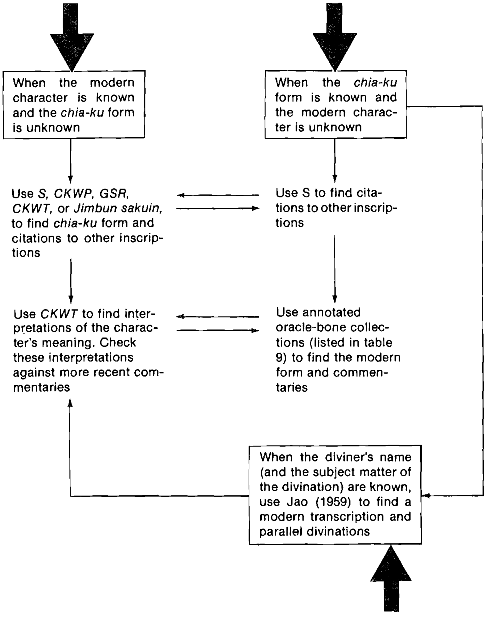

When the modern character is known and the *chia-ku* form is unknown
When the *chia-ku* form is known and the modern character is unknown
Use *S*, *CKWP*, *GSR*, *CKWT*, or *Jimbun sakuin*, to find *chia-ku* form and citations to other inscriptions
Use S to find citations to other inscriptions
Use *CKWT* to find interpretations of the character's meaning. Check these interpretations against more recent commentaries
Use annotated oracle-bone collections (listed in table 9) to find the modern form and commentaries
When the diviner's name (and the subject matter of the divination) are known, use Jao (1959) to find a modern transcription and parallel divinations

Fig. 21. A flow chart for deciphering inscriptions

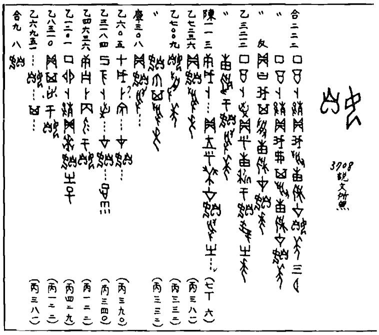
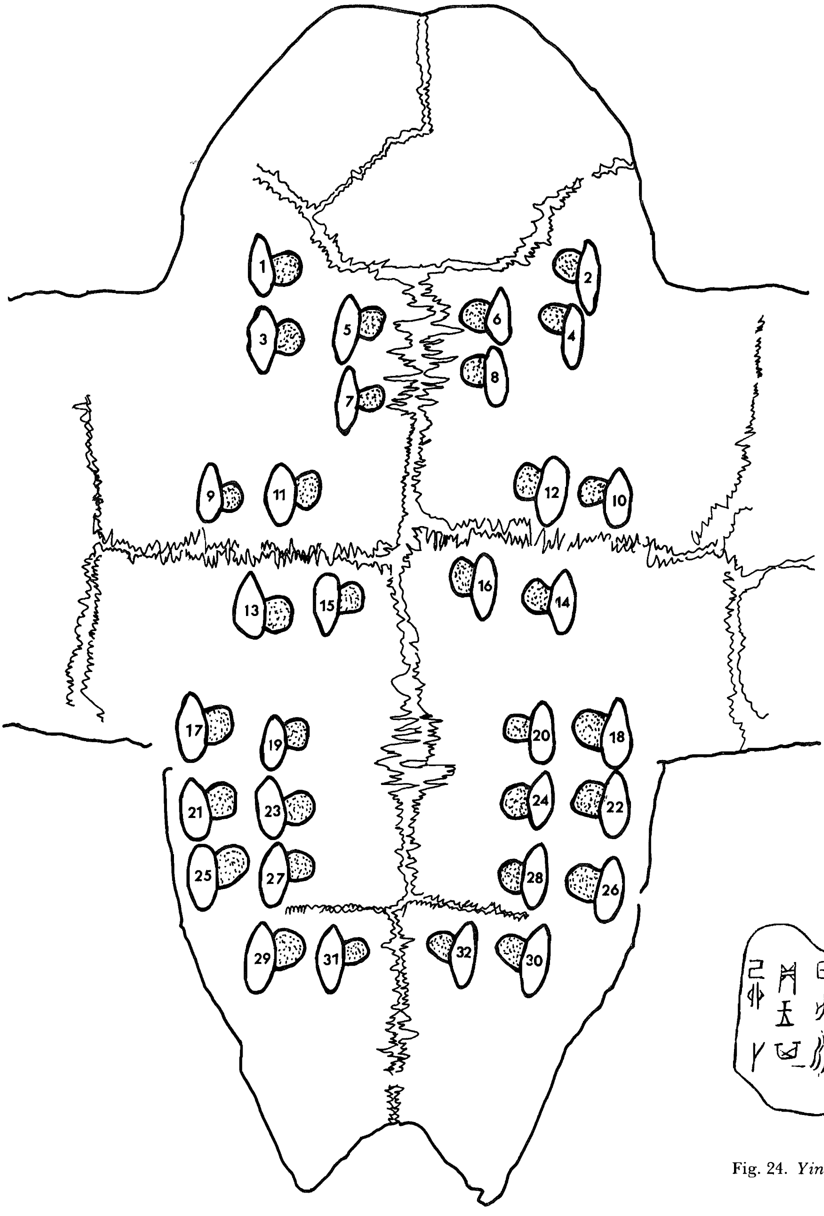


Fig. 22. The context of a graph (S142.3)



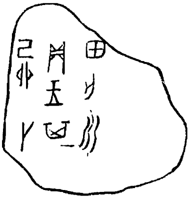


Fig. 24. *Yin-hsü* 16 (D)

Fig. 23. The hollows on a plastron set

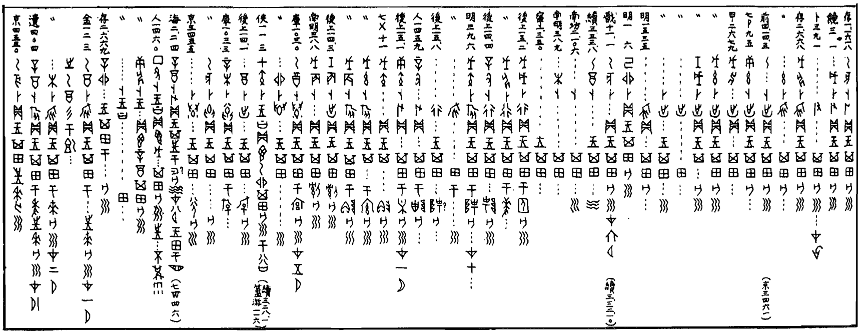


Fig. 25. Rules of thumb for dating (S289.4).

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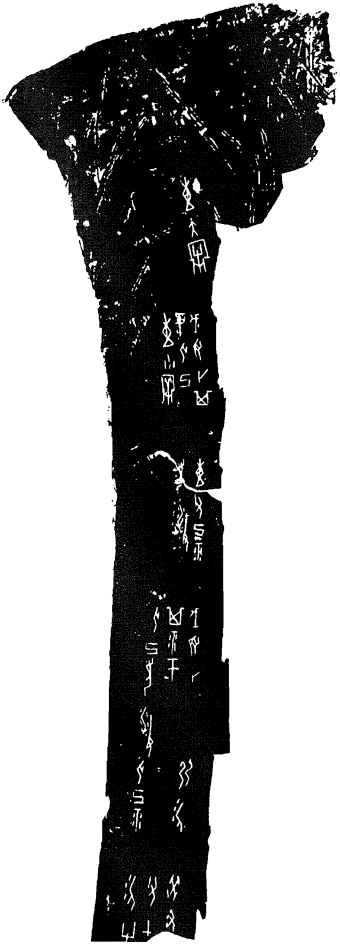

Fig. 26. Period III writing style (*Chia-t'u* 42). Reduced 10 percent.

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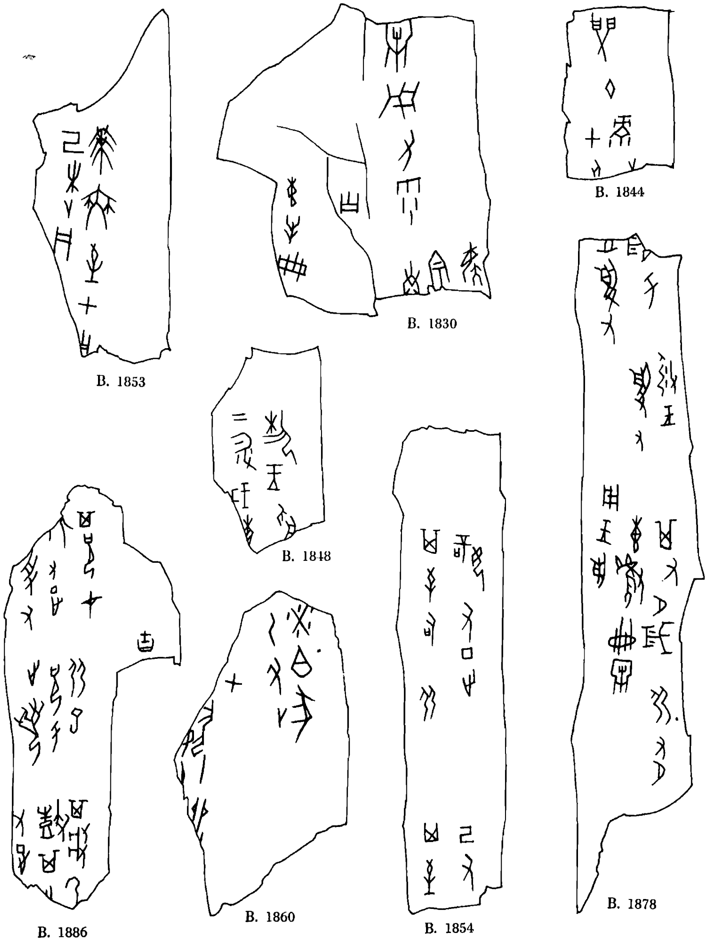

B. 1853

B. 1830

B. 1844

B. 1848

B. 1878

B. 1886

B. 1860

B. 1854

Fig. 27. Period III+IV writing style (*Jimbun shakubun,* plate 25). Reprinted by permission.

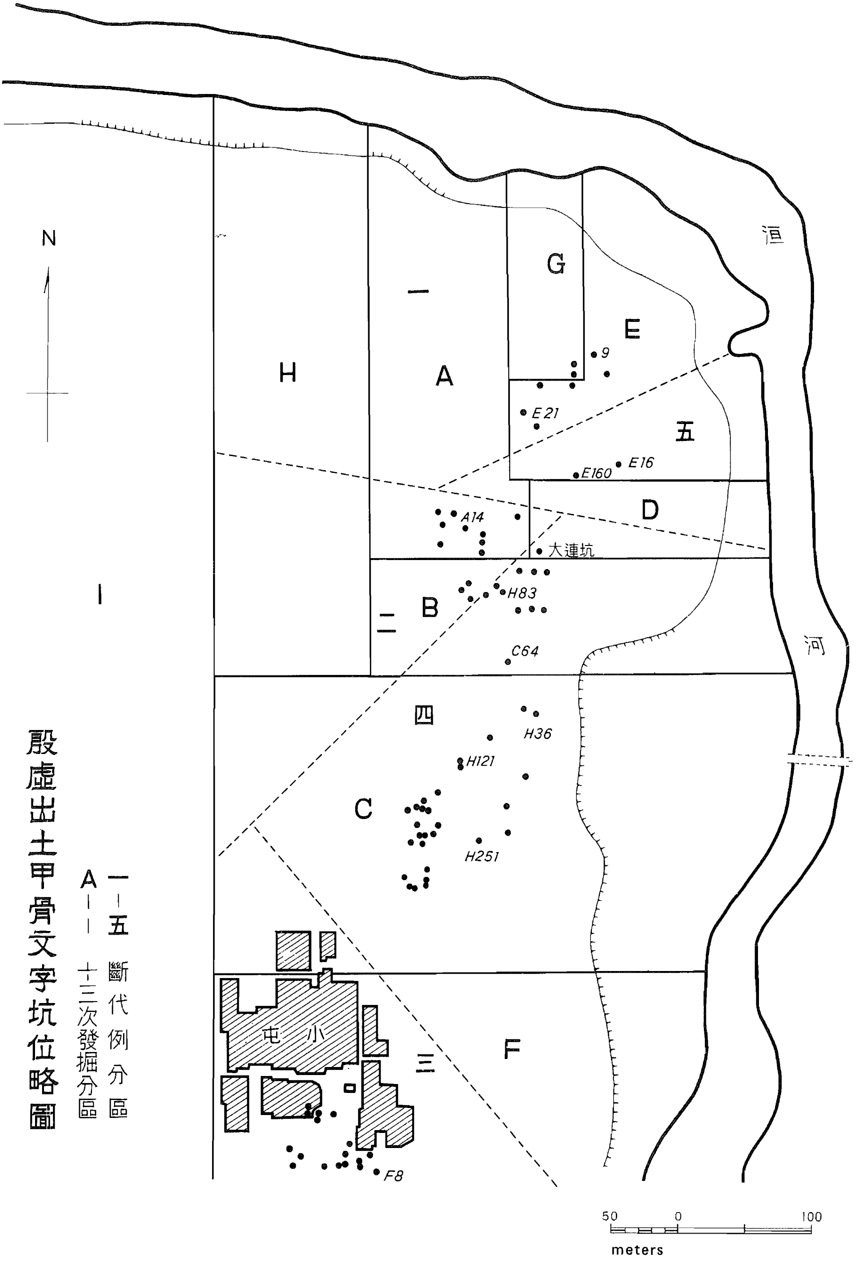

Fig. 28. Oracle-bone excavation sites at Hsiao-t'un.

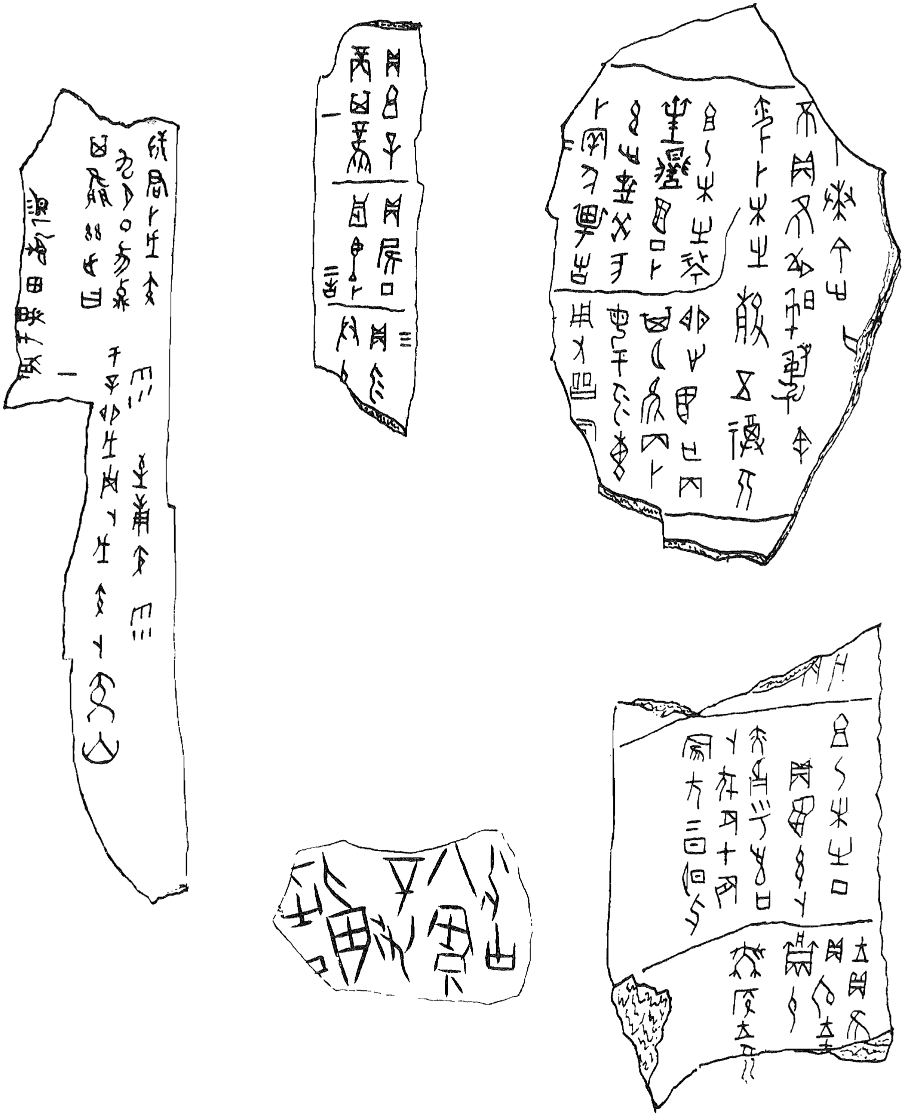

Fig. 29. Fake inscriptions. Clockwise from the left: *K'u-fang* 976 (D) (the inscriptions on the upper section are fake); *K'u-fang* 1528 (D) (the top and middle inscriptions are fake); *K'u-fang* 1 (D); *K'u-fang* 2 (D); *T'ieh-yün* 130.1

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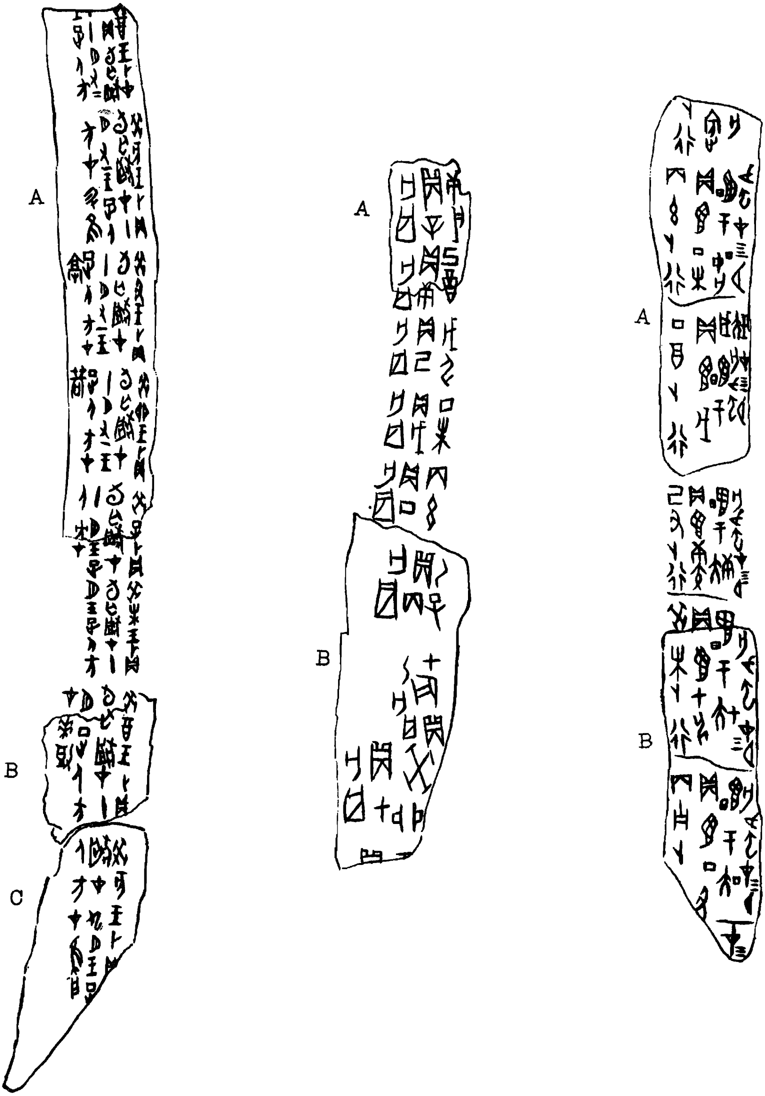


Fig. 30. Exploded and imaginative reconstructions. Left: *Chui-hsin* 312 (A *Chin-chang* 584 [D] B *Ching-chin* 5552, C *Kikkō* 1.9.12); Center: *Chui-hsin* 508 (A *Nan-pei*, "Fu" 86 [D], B *Yeh-san* 41.11); right: *Chui-hsin* 545 (A *Hsü-ts'un* 2.605 [D], B *Hsü-ts'un* 2.607 [D]). Reprinted with permission.

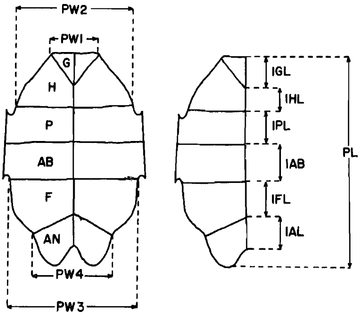


Fig. 31. Scute seams measured.

G= gular scute
H= humeral scute
P= pectoral scute

AB= abdominal scute
F= femoral scute
AN= anal scute

PW1= plastron width at gular-humeral seam
PW2= plastron width at humeral-pectoral seam
PW3= plastron width at abdominal-femoral seam
PW4= plastron width at femoral-anal seam

PL= plastron length
IGL= intergular seam length
IHL= interhumeral seam length
IPL= interpectoral seam length

IAB= interabdominal seam length
IFL= interfemoral seam length
IAL= interanal seam length

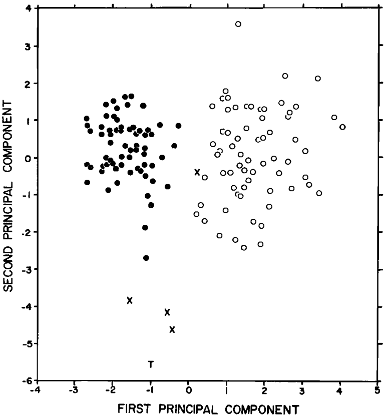


Fig. 32. Plastron identification: principal component analysis (1). White circles = *Ocadia sinensis,* black circles = *Chinemys reevesi,* T = *Testudo emys,* X = identification uncertain.

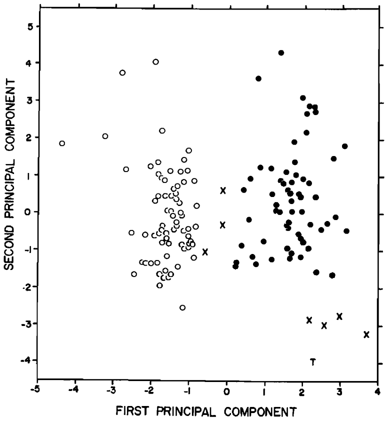


Fig. 33. Plastron identification: principal component analysis (2). Symbols as in fig. 32.

Tables

Table 1
The Royal Genealogy Recorded in the Sacrifice Inscriptions

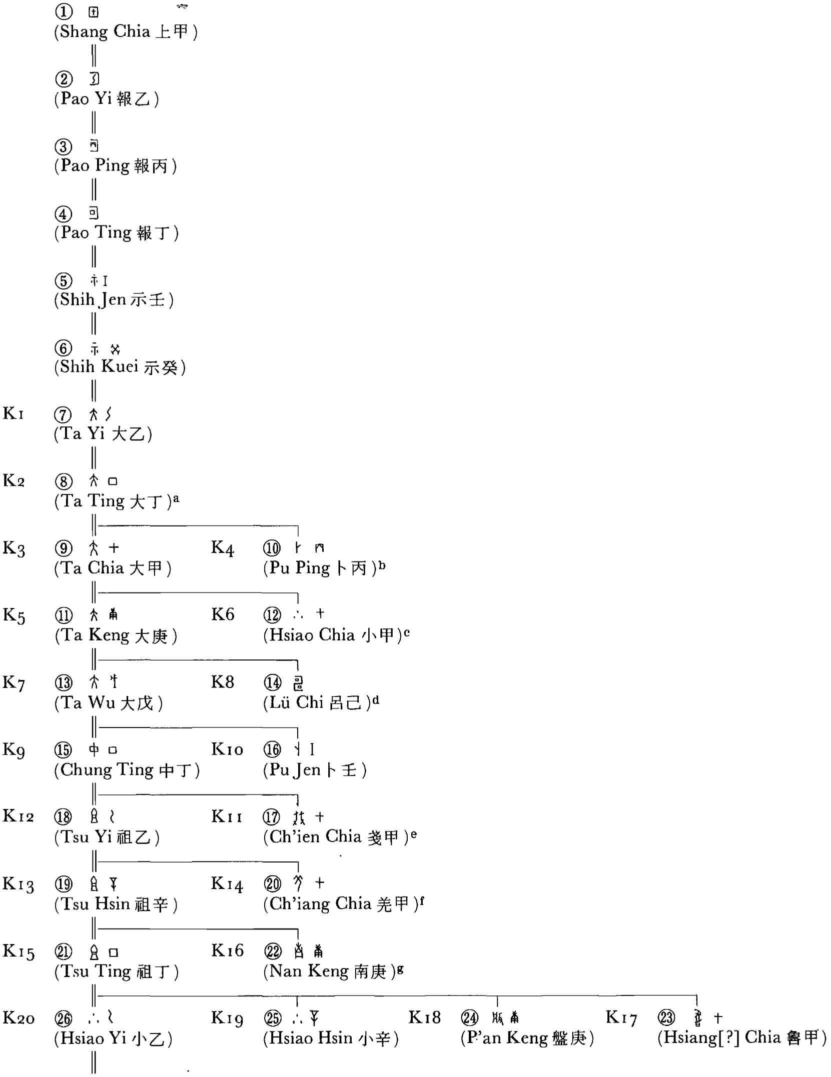
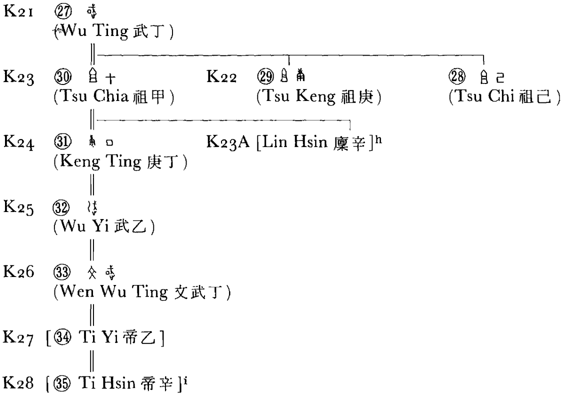


Table 1 (continued)



Sources: S556; cf. Ch'en Meng-chia (1956), pp. 367–388; Shima (1958), pp. 70–92; Ch'ü Wan-li (1965a), pp. 94–100. N.B. For each entry, oracle-bone graphs are given on the top line, modern romanizations and transcriptions on the second line. For other royal names and other versions of the names that appear in the divination inscriptions and later sources, see table 15. The K numbers refer to the order in which the kings acceded to the throne; the circled numbers indicate the ritual order in which ancestors received sacrifice in the ritual schedules of periods IIb and V. The double vertical line links the members of the *ta-tsung* (see ch. 4, n. 18). The more distant protoancestors, such as K'uei 夔 and Wang Hai 王亥, who belong to the pre-dynastic period, are not given in this table; for these, see Ch'ü Wan-li (1965a), pp. 89–93; Chang Kwang-chih (1973).

[a] According to *Meng-tzu* and *Shih-chi*, K2 did not ascend the throne (Ch'ü Wan-li[1965a], pp. 95, 99). In the inscriptions about sacrifice, however, he is treated like all the other Shang kings.

[b] According to *Shih-chi* (*SKK*, ch. 3, p. 14), Wai Ping 外丙 (K4), the younger brother of T'ai Ting 太丁 (K2) who died before taking power, succeeded T'ang 湯 (K1) on the throne. But according to *Meng-tzu*, *Tso-chuan*, and the *Shang-shu* preface, T'ai Chia 太甲 (K3) must have come to the throne before Wai Ping (K4). This is supported by the ritual schedule recorded in the inscriptions, which indicates that Pu Ping (⑩) was the son of Ta Ting (⑧) and, since he was not included in the *ta-tsung* rituals, the younger brother of Ta Chia (⑨). See Ch'en Meng-chia (1956), p. 379; Shima (1958), p. 77; cf. Hsü Chin-hsiung (1968), p. 25.

[c] *Shih-chi*, "Yin pen-chi 殷本紀" (*SKK*, ch. 3, p. 16), gives Hsiao Chia (K6) as the son and successor of T'ai Keng 太庚 (K5); but *Shih-chi*, "San-tai shih-piao 三代世表" (*SKK*, ch. 13, p. 16), says he was the younger brother of T'ai Keng. Hsiao Chia is not listed in the sacrifice inscriptions of ritual and sacrifice as a member of the direct line of descent; nor does his consort have a place in the ritual schedule. This indicates that the "Shih-piao" version is correct. See Shima (1958), p. 78 (Ch'en Meng-chia [1956], p. 379, Ch'ü Wan-li [1965a], p. 96, and Hsü Chin-hsiung [1968], p. 37, however, accept the "Yin pen-chi" version).

[d] *Shih-chi* (*SKK*, ch. 3, p. 17) gives T'ai Wu 太戊 (traditionally read T'ai Mou) (K7) as the younger brother and successor to Yung Chi 雍己 (K8). The ritual inscriptions indicate that Lü Chi (⑭) was the successor to Ta Wu (⑬) and, since not of the *ta-tsung*, his brother. See Ch'en Meng-chia (1956), pp. 377, 379; Shima (1958), p. 78; Ch'ü Wan-li (1965), p. 96.

[e] According to *Shih-chi* (*SKK*, ch. 3, p. 19), Tsu Yi (K12) was the son of Ho Tan Chia 河亶甲 (K11), whom he succeeded to the throne. But in the oracle inscriptions Chung Ting (K9) is recorded in the main line of descent, Ch'ien Chia (K11) is not; Chung Ting's consort is included in the ritual schedule, Ch'ien Chia's is not. This indicates that Chung Ting was the son and father of kings and that Ch'ien Chia was collateral. See Shima (1958), p. 78. *Shih-chi* (loc. cit.) gives Ho Tan Chia (K11) as the younger brother of Chung Ting (K9) and thus the uncle of Tsu Yi (K12). Here I follow the suggestion of Chang Kwang-chih and others that Ch'ien Chia (K11) was a son of Chung Ting (K9) and a brother of Tsu Yi (K12). See, in particular, Ch'en Meng-chia (1951), p. 14; Chang Kwang-chih (1963), pp. 71, 79; (1965a), p. 61; Hsü Chin-hsiung (1965), pp. 123–130. This interpretation, which derives from Chang's view that Chia and Ting ancestors should not have ruled in the same generation, is supported by *Han-shu*, ch. 20, p. 26a, which records Tsu Yi (K12) as the younger brother of Ho Tan Chia (K11) (though it also records Ho Tan Chia [K11] as the younger brother of Wai Jen [K10], which is incompatible with the oracle-bone evidence). The ritual inscriptions cannot, in this

Table 1 (continued)

case, provide definite information about Ch'ien Chia's generation, with the result that this revision of Ssu-ma Ch'ien's genealogy is not firmly proved.

[f] The original status of Ch'iang Chia (K14) in the Shang genealogy is uncertain because his sacrificial status changed with time. In period I he was not treated as a *ta-tsung* ancestor, but as a member of a collateral line; in periods II to IV (?) he was a *ta-tsung* ancestor, but in period V he was again excluded, and his wife did not receive the five rituals accorded the wives of *ta-tsung* kings. These changes presumably reflect the attempt of the sacrificing kings to legitimize (or delegitimize) Ch'iang Chia's descendants. See Shima (1958), p. 78; *Jimbun* 1818, *shakubun*, p. 467; *Ping-pien* 395, *k'ao-shih*, pp. 461–462; Chao Lin (1972), p. 134, n. 1. The suggestion of Chang Kwang-chih (1963), pp. 70, 79; (1965a), p. 62, that Ch'iang Chia (K14) was the son (rather than younger brother) of Tsu Hsin (K13) and father (rather than uncle) of Tsu Ting (K15) cannot be positively rejected (see the counterarguments of Chang Ping-ch'üan [*Ping-pien* 395, *k'ao-shih*, pp. 461–462] and Hsü Chin-hsiung [1965], p. 130), but at present I prefer to follow Ssu-ma Ch'ien's genealogy. That his genealogy agrees with the picture presented by the period V ritual divinations suggests, as one would naturally expect, that his view of the Shang king list was that shared by the last two Shang kings or their descendants, and not by the Shang of, for example, Tsu Chia's time. The case reminds us that the Shang genealogy deduced from the divinations about ritual and sacrifice was not necessarily a true historical record, but may have been in whole or part a fictional construct that changed with time.

[g] According to *Shih-chi* (*SKK*, ch. 3, p. 19), Nan Keng (K16 ㉒) was the son of Wu Chia 沃甲 (K14 ⑳). But the Shang sacrifice inscriptions show he must have succeeded Tsu Ting (K15 ㉑) to the throne. See Ch'en Meng-chia (1956), p. 379; Shima (1958), p. 79.

[h] It is possible that Lin Hsin, the name given him by *Shih-chi* (*SKK*, ch. 3, p. 24), never reigned; it is for this reason that I assign him the number K23A. As Shima has argued, his absence in the period V ritual cycle indicates that Lin Hsin did not accede to the throne and that the succession passed directly from K23 to K24 (Shima [1958], pp. 74, 80). Further, if Lin Hsin had reigned, one would expect to find rituals offered to two of Tsu Chia's consorts, i.e., the mothers of Lin Hsin (K23A) and Keng Ting (K24); in fact, rituals were offered only to Pi Wu 妣戊 (Itō [1962], p. 21). The absence of Lin Hsin and his mother from the period V ritual cycle may, however, have other explanations; as in the case of Ch'iang Chia (note *f*), the ritual schedule may have been telescoped for a variety of ritual, calendrical, or political reasons not directly related to Lin Hsin's having taken the throne or not. More study is needed. It is interesting, however, that both *Shih-chi* and *Ku-pen chu-shu chi-nien* (Fan [1962], p. 22) believe Lin Hsin did reign, for that conclusion could not have been derived from the ritual practice of period V.

[i] Since we have no inscriptions from a putative period VI in which the defeated Shang would have been sacrificing to their ancestors from period V, there are virtually no references to Ti Yi and Ti Hsin in the inscriptions. See the entry for Ti Yi in table 15.

Table 2

Carbon-14 Dates and Dendrochronological Adjustments

	Sites		
	Honan, An-yang Wu-kuan-ts'un	Honan, An-yang Hsiao-t'un	Liaoning, Pa-lin-tso-ch'i, Fu-ho-kou-men
Sample	ZK-5	ZK-86	ZK-188
Dates in C14 years b.p. (half-life 5568±30)[a]	2949±100	2978±90	4601±110
Dates in C-14 years b.p. (half-life 5730±40)[a]	3035±100	3065±90	4735±110
Bristlecone-pine date, B.C. (Damon, Long, and Wallick [1972]); one-sigma confidence interval[b]	1254±145 (i.e., 1399–1109)	1290±154 (i.e., 1444–1136)	3351±143 (i.e., 3494–3208)
Bristlecone-pine date, B.C. (Clark [1975]); one-sigma confidence interval[b]	1241±162 (i.e., 1403–1079)	1276.5±152.5 (i.e., 1429–1124)	3416±139 (i.e., 3555–3277)
Bristlecone-pine date, B.C. (Clark [1975]); two-sigma confidence interval[b]	1235.5±295.5 (i.e., 1531–940)	1265±286 (i.e., 1551–979)	3390±295 (i.e., 3685–3095)

Sources: ZK-5: *KK* (1972.1), p. 55; Barnard (1975), pp. 10–11, 84–85; ZK-86: *KK* (1972.5), p. 57; Barnard (1975), pp. 24–25, 86–87; ZK-188: *KK* (1964.1), p. 3; (1974.5), p. 336; Barnard (1975), pp. 64–65, 86–87, and errata sheet.

[a] b.p., "before the present," takes 1950 as the present. On the half-life of carbon-14, see appendix 4, n. 16.

[b] On the significance of the one- and two-sigma confidence intervals, see appendix 4, n. 15.

Table 3
Identification of Turtle Plastrons: Scute Seam Ratios

Plastron		IGL + IHL/PL Ratio	Identification*
Chia-pien	3575	.221	*Cr*
	3576	.171	*Os*
	3914	.175	*Os*
	3915	.177	*Os*
	3916	.155	*Os*
	3917	.178	*Os*
	3918	.162	*Os*
Ping-pien	1/2	.186	*Os*
	3/4	.191	*Os*
	5/6	.179	*Os*
	8/9	.202	*Os*
	16/17	.174	*Os*
	22/23	.193	*Os*
	26/27	.231	*Cr*
	28/29	.213	*Cr*
	30/31	.232	*Cr*
	34	.162	*Os*
	36	.191	*Os*
	37	.190	*Os*
	39/40	.164	*Os*
	41/42	.156	*Os*
	43/44	.202	*Cr*
	47/48	.186	*Os*
	53/54	.174	*Os*
	57/58	.173	*Os*
	61/62	.175	*Os*
	63/64	.196	*Cr*
	69/70	.245	*Cr*
	71/72	.202	*Cr*
	73/74	.216	*Cr*
	75	.261	*Cr*
	80	.184	*Os*
	81/82	.223	*Cr*
	83/84	.179	*Os*
	85	.204	*Cr*
	86/87	.173	*Os*
	88/89	.178	*Os*
	90/91	.177	*Os*
	93	.201	*Cr*
	96/97	.167	*Os*
	98/99	.172	*Os*
	102/103	.186	*Os*
	110/111	.207	*Cr*
	116	.223	*Cr*
	117/118	.189	*Os*
	126/127	.159	*Os*
	128/129	.173	*Os*
	130/131	.224	*Cr*
	132/133	.187	*Os*
Ping-pien	134/135	.178	*Os*
	151/152	.276	*Mm*
	159/160	.161	*Os*
	165/166	.166	*Os*
	171	.218	*Cr*
	174	.184	*Os*
	184	.317	*Te*
	187/188	.195	*Cr*
	189	.242	*Cr*
	191/192	.256	*Cr*
	193/194	.274	*Mm*
	195/196	.207	*Cr*
	197/198	.181	*Os*
	201/202	.176	*Os*
	217/218	.167	*Os*
	269/270	.163	*Os*
	273/274	.167	*Os*
	275	.165	*Os*
	276/277	.184	*Os*
	280/281	.213	*Cr*
	286/287	.217	*Cr*
	302/303	.176	*Os*
	317/318	.207	*Cr*
	321/322	.172	*Os*
	323	.158	*Os*
	330/331	.171	*Os*
	332/333	.185	*Os*
	334/335	.204	*Cr*
	338/339	.178	*Os*
	340/341	.163	*Os*
	342/343	.152	*Os*
	345/346	.197	*Cr*
	347/348	.191	*Os*
	349/350	.163	*Os*
	353	.226	*Cr*
	354/355	.208	*Cr*
	358/359	.208	*Cr*
	360/361	.221	*Cr*
	364/365	.205	*Cr*
	366/367	.229	*Cr*
	368/369	.225	*Cr*
	370	.214	*Cr*
	373/374	.235	*Cr*
	377/378	.205	*Cr*
	381/382	.179	*Os*
	385	.155	*Os*
	386/387	.191	*Os*
	388/389	.210	*Cr*
	394/395	.224	*Cr*

Table 3 (continued)

Plastron		IGL + IHL/PL Ratio	Identification*
Ping-pien	396/397	.196	*Cr*
	402	.235	*Cr*
	403/404	.198	*Cr*
	411/412	.178	*Os*
	423/424	.161	*Os*
	427/428	.236	*Cr*
	442/443	.192	*Os*
	492/493	.218	*Cr*
	500/501	.184	*Os*
	502/503	.216	*Cr*
	513/514	.172	*Os*
	517/518	.176	*Os*
	527/528	.232	*Cr*
	535/536	.214	*Cr*
	540/541	.220	*Cr*
	542/543	.226	*Cr*
	552/553	.236	*Cr*
	554	.236	*Cr*
	555/556	.182	*Os*
	557	.231	*Cr*
	559	.202	*Cr*
	566/567	.232	*Cr*
	578/579	.237	*Cr*
	581/582	.212	*Cr*
	583/584	.224	*Cr*
	585/586	.216	*Cr*
	587/588	.221	*Cr*
	612	.210	*Cr*
	613	.232	*Cr*
	615/616	.220	*Cr*
	617/618	.224	*Cr*
	629/630	.197	*Cr*
Yi-pien	749/750	.211	*Cr*
	751/752	.164	*Os*
	753/754	.225	*Cr*
	865/866	.216	*Cr*
	1052/1053	.222	*Cr*
	2285/2286	.229	*Cr*
	2683/2684	.244	*Cr*
	2903	.222	*Cr*
	3090	.213	*Cr*
	3212/3213	.169	*Os*
	3288/3289	.197	*Cr*
	3321	.180	*Os*
	3336	.219	*Cr*
	3343/3344	.167	*Os*
	3350	.201	*Cr*
	3379/3380	.214	*Cr*
	3381/3382	.230	*Cr*
	3389	.165	*Os*
	3398	.239	*Cr*
	3401/3402	.200	*Cr*
Yi-pien	3409/3410	.187	*Os*
	3411	.156	*Os*
	3422/3423	.175	*Os*
	3424/3425	.175	*Os*
	3426/3427	.439	?
	3429	.265	*Cr*
	3431/3432	.227	*Cr*
	3441/3442	.259	*Cr*
	3445	.240	*Cr*
	3471/3472	.166	*Os*
	3473/3474	.252	*Cr*
	3478	.249	*Cr*
	3791	.174	*Os*
	3797	.194	*Os*
	3864/3865	.283	*Mm*
	4064	.173	*Os*
	4067	.204	*Cr*
	4119/4120	.151	*Os*
	4293/4294	.222	*Cr*
	4330	.292	*Mm*
	4504	.196	*Cr*
	4507	.190	*Os*
	4521	.131	*Os*
	4577	.204	*Cr*
	4641	.234	*Cr*
	4695/4696	.212	*Cr*
	4718	.158	*Os*
	4810	.171	*Os*
	5268	.192	*Os*
	5313/5314	.164	*Os*
	5317/5318	.184	*Os*
	5321	.169	*Os*
	5349	.204	*Cr*
	5384	.158	*Os*
	5394	.149	*Os*
	5395/5396	.169	*Os*
	5406/5407	.197	*Cr*
	6299	.158	*Os*
	6384	.218	*Cr*
	6396	.201	*Cr*
	6404/6405	.170	*Os*
	6408/6409	.166	*Os*
	6422/6423	.172	*Os*
	6668/6669	.155	*Os*
	6685/6686	.206	*Cr*
	6696	.194	*Os*
	6703/6704	.188	*Os*
	6748/6749	.206	*Cr*
	6751/6752	.173	*Os*
	6915/6916	.196	*Cr*
	6966/6967	.246	*Cr*
	7040/7041	.220	*Cr*

Table 3 (continued)

Plastron		IGL + IHL/PL Ratio	Identification*
Yi-pien	7122/7123	.220	*Cr*
	7144	.205	*Cr*
	7288/7289	.167	*Os*
	7310/7311	.211	*Cr*
	7336/7337	.189	*Os*
	7385	.214	*Cr*
	7490/7491	.222	*Cr*
	7746/7747	.228	*Cr*
	7750	.220	*Cr*
	7767/7768	.159	*Os*
	7773	.241	*Cr*
	8165/8166	.156	*Os*
	8710	.230	*Cr*
	8714	.180	*Os*
	8721	.205	*Cr*
	8722	.229	*Cr*
	8723	.194	*Os*
	8728	.222	*Cr*
	8804	.236	*Cr*
Yi-pien	8808	.236	*Cr*
	8810	.181	*Os*
	8811	.231	*Cr*
	8815	.172	*Os*
	8816	.175	*Os*
	8817	.170	*Os*
	8818	.159	*Os*
	8852	.183	*Os*
	8869	.211	*Cr*
	8892	.204	*Cr*
	8893	.197	*Cr*
	8894	.202	*Cr*
	8895	.181	*Os*
	8896	.159	*Os*
	8898	.198	*Cr*
	8936	.163	*Os*
	8938	.169	*Os*
	9030	.215	*Cr*

**Cr* = *Chinemys reevesi*; *Mm* = *Mauremys mutica*; *Os* = *Ocadia sinensis*; *Te* = *Testudo emys*; other abbreviations as in appendix 1.

Table 4

Identification of Turtle Plastrons: Principal Component Analysis

Plastron		I			II		
		K1	K2	Identification	K1	K2	Identification
Ping-pien	1/2	−0.18	0.80	*Os*	−1.06	1.70	*Os*
	3/4	−1.29	−0.33	*Os*	−1.50	0.07	*Os*
	5/6	−1.95	1.05	*Os*	−1.15	−0.48	*Os*
	7	0.18	−1.49	*Cr*	−0.83	0.89	*Os*
	16/17	−1.79	0.66	*Os*	−1.28	0.27	*Os*
	22/23	−1.50	0.06	*Os*	−1.20	−0.09	*Os*
	37	−0.91	−0.70	*Os*	−1.23	1.11	*Os*
	39/40	−2.62	1.26	*Os*	−1.79	−1.66	*Os*
	41/42	−1.11	0.55	*Os*	−1.63	0.45	*Os*
	47/48	−1.87	−0.36	*Os*	−2.19	−0.60	*Os*
	53/54	−1.36	0.27	*Os*	−1.47	−0.08	*Os*
	57/58	−1.51	−0.47	*Os*	−1.43	0.63	*Os*
	61/62	−2.16	1.04	*Os*	−2.43	−1.67	*Os*
	73/74	1.92	1.24	*Cr*	2.18	−0.27	*Cr*
	80	−0.95	0.56	*Os*	−1.01	−0.82	*Os*
	81/82	3.10	0.12	*Cr*	2.05	2.71	*Cr*
	83/84	−0.65	−0.05	*Os*	−1.03	1.15	*Os*
	85	1.53	0.72	*Cr*	1.60	0.61	*Cr*
	86/87	−1.08	−2.79	*Os?*	−3.26	2.04	*Os*
	88/89	−1.14	−0.02	*Os*	−1.33	0.38	*Os*
	90/91	−2.11	−0.06	*Os*	−1.59	0.04	*Os*
	93	1.12	−0.44	*Cr*	0.93	−0.72	*Cr*
	96/97	−1.67	1.56	*Os*	−1.69	0.89	*Os*
	98/99	−2.24	−0.42	*Os*	−1.83	−1.38	*Os*
	116	0.57	0.27	*Cr*	1.44	0.82	*Cr*
	122/123	−0.99	−1.31	*Os*	−1.52	1.15	*Os*
	126/127	−1.08	0.75	*Os*	−1.49	0.43	*Os*
	134/135	−1.75	−0.25	*Os*	−1.92	0.30	*Os*
	159/160	−1.85	0.72	*Os*	−1.84	1.03	*Os*
	165/166	−1.87	1.28	*Os*	−1.02	−0.64	*Os*
	171	0.81	0.10	*Cr*	1.89	0.53	*Cr*
	174	−1.02	−1.09	*Os*	−1.36	−0.22	*Os*
	184	−0.41	−4.79	*Te*	−2.83	3.75	*Te*
	187/188	1.03	1.58	*Cr*	1.52	1.15	*Cr*
	189	1.20	−0.86	*Cr*	2.20	−2.98	*Cr?*
	195/196	0.90	0.63	*Cr*	2.37	−1.54	*Cr*
	197/198	−2.62	−0.85	*Os*	−2.52	−0.55	*Os*
	201/202	−1.57	0.06	*Os*	−1.86	0.47	*Os*
	217/218	−2.09	0.91	*Os*	−1.11	−0.48	*Os*
	273/274	−2.57	−0.34	*Os*	−2.21	−1.37	*Os*
	275	−2.27	0.58	*Os*	−1.61	−0.54	*Os*
	286/287	1.18	0.26	*Cr*	1.63	−1.19	*Cr*
	302/303	−0.93	−0.29	*Os*	−1.33	0.71	*Os*
	321/322	−1.44	0.74	*Os*	−1.23	0.00	*Os*
	323	−1.18	1.35	*Os*	−1.04	−0.43	*Os*
	330/331	−1.53	0.70	*Os*	−1.42	−0.42	*Os*
	332/333	−1.23	−0.41	*Os*	−1.77	0.91	*Os*
	338/339	−2.12	−0.22	*Os*	−1.16	−0.95	*Os*
	340/341	−2.56	0.66	*Os*	−1.61	−1.58	*Os*
	342/343	−0.33	0.25	*Os*	−1.08	1.41	*Os*

Table 4 (continued)

Plastron*		I			II		
		K1	K2	Identification	K1	K2	Identification
Ping-pien	349/350	−1.64	0.23	*Os*	−1.85	1.37	*Os*
	354/355	2.53	2.19	*Cr*	3.08	1.86	*Cr*
	364/365	1.99	0.50	*Cr*	1.68	0.33	*Cr*
	366/367	1.50	−0.39	*Cr*	1.70	0.06	*Cr*
	368/369	2.16	−0.94	*Cr*	0.60	0.98	*Cr*
	370	2.00	1.28	*Cr*	2.12	0.85	*Cr*
	377/378	0.90	1.57	*Cr*	2.11	−0.90	*Cr*
	385	−1.89	0.04	*Os*	−1.81	−0.58	*Os*
	386/387	−1.97	0.47	*Os*	−1.35	−0.34	*Os*
	388/389	0.63	1.35	*Cr*	1.69	−1.06	*Cr*
	402	1.95	−2.36	*Cr*	2.61	−0.25	*Cr*
	411/412	−1.10	−0.57	*Os*	−1.39	0.51	*Os*
	423/424	−2.62	0.78	*Os*	−1.88	−1.39	*Os*
	502/503	0.21	−0.45	*Cr*	0.33	0.64	*Cr*
	513/514	−1.51	−0.46	*Os*	−2.08	1.24	*Os*
	517/518	−0.72	0.81	*Os*	−0.10	0.65	?
	527/528	3.47	−0.97	*Cr*	1.37	4.34	*Cr*
	552/553	3.20	−0.73	*Cr*	2.04	2.20	*Cr*
	557	3.10	−0.58	*Cr*	0.77	3.63	*Cr*
	578/579	2.74	−0.86	*Cr*	1.78	1.40	*Cr*
	581/582	0.48	−1.75	*Cr*	0.35	−0.85	*Cr*
	585/586	1.40	0.04	*Cr*	1.59	−0.91	*Cr*
	612	1.02	0.61	*Cr*	1.30	0.09	*Cr*
	613	2.83	0.46	*Cr*	2.12	2.90	*Cr*
	615/616	2.44	1.45	*Cr*	2.30	0.45	*Cr*
	629/630	−1.88	0.66	*Os*	−0.84	−0.40	*Os*
Yi-pien	751/752	−1.74	−0.09	*Os*	−2.18	−1.38	*Os*
	753/754	1.72	−1.76	*Cr*	0.83	1.22	*Cr*
	865/866	1.05	1.27	*Cr*	3.70	−3.29	*Cr*
	1052/1053	1.40	−1.09	*Cr*	1.60	−0.26	*Cr*
	2683/2684	1.49	−2.46	*Cr*	0.75	−1.36	*Cr*
	2903	1.97	1.03	*Cr*	2.60	−3.03	*Cr*
	3090	0.85	−2.15	*Cr*	0.15	−1.38	*Cr*
	3212/3213	−1.35	0.15	*Os*	−1.73	−0.47	*Os*
	3288/3289	0.71	0.06	*Cr*	0.59	−1.12	*Cr*
	3321	−1.74	0.77	*Os*	−0.92	−0.87	*Os*
	3336	1.00	−1.46	*Cr*	1.69	0.88	*Cr*
	3343/3344	−2.67	0.91	*Os*	−1.53	−1.72	*Os*
	3350	1.24	1.30	*Cr*	1.93	−0.67	*Cr*
	3379/3380	2.00	−0.20	*Cr*	1.40	0.90	*Cr*
	3381/3382	0.95	−0.42	*Cr*	1.18	0.52	*Cr*
	3389	−1.35	0.59	*Os*	−1.60	−0.69	*Os*
	3398	3.85	1.06	*Cr*	1.95	3.12	*Cr*?
	3401/3402	2.63	1.08	*Cr*	1.71	1.96	*Cr*
	3409/3410	1.60	−0.12	*Cr*	1.57	−0.28	*Cr*
	3411	−2.28	0.76	*Os*	−2.01	−1.37	*Os*
	3422/3423	−0.43	−0.84	*Os*	−1.77	2.21	*Os*
	3429	−0.86	−5.07	?	−0.12	−0.27	*Cr*?
	3445	−1.11	−1.95	?	−0.54	−1.05	*Os*?
	3471/3472	−1.79	0.65	*Os*	−1.56	−0.82	*Os*
	3473/3474	2.15	−1.34	*Cr*	1.93	−1.14	*Cr*

Table 4 (continued)

Plastron		I			II		
		K1	K2	Identification	K1	K2	Identification
Yi-pien	3478	−0.58	−4.21	?	−0.97	−0.79	*Os*
	3791	1.28	−2.26	*Cr*	−1.96	4.06	?
	3797	−1.50	−3.99	?	−4.39	1.86	?
	4064	−1.51	1.61	*Os*	−0.81	−1.20	*Os*
	4067	1.85	0.45	*Cr*	1.79	1.05	*Cr*
	4504	0.98	1.76	*Cr*	2.93	−2.80	?
	4507	2.63	−0.11	*Cr*	2.29	2.76	*Cr*
	4521	−2.17	1.37	*Os*	−1.72	−0.80	*Os*
	4577	1.36	−0.27	*Cr*	2.31	−3.74	?
	5394	−2.65	−0.26	*Os*	−1.78	−1.93	*Os*
	5395/5396	−2.04	0.32	*Os*	−1.29	−1.47	*Os*
	6384	1.94	−1.88	*Cr*	1.62	0.55	*Cr*
	6396	0.98	0.69	*Cr*	1.37	0.06	*Cr*
	6422/6423	1.54	1.35	*Cr*	1.87	−0.53	*Cr*
	6668/6669	−1.14	−0.26	*Os*	−2.70	1.17	*Os*
	6685/6686	2.16	0.63	*Cr*	2.46	−0.43	*Cr*
	6703/6704	1.72	−0.41	*Cr*	1.26	0.25	*Cr*
	6748/6749	3.44	2.10	*Cr*	2.96	0.06	*Cr*
	6751/6752	−1.61	−0.03	*Os*	−1.21	−0.89	*Os*
	7122/7123	1.60	−0.66	*Cr*	1.91	0.44	*Cr*
	7310/7311	0.22	−1.31	*Cr*	0.17	−1.31	*Cr*
	7385	1.30	0.49	*Cr*	2.09	−0.98	*Cr*
	7490/7491	1.33	−1.07	*Cr*	1.59	−0.31	*Cr*
	7746/7747	4.06	0.79	*Cr?*	2.27	2.89	*Cr*
	7750	1.49	−0.87	*Cr*	0.52	0.17	*Cr*
	7767/7768	−1.29	0.64	*Os*	−1.73	−0.34	*Os*
	7773	2.27	−0.08	*Cr*	3.12	−0.43	*Cr*
	8714	1.30	3.53	*Cr?*	2.77	−1.64	*Cr*
	8721	2.84	1.31	*Cr*	1.98	0.93	*Cr*
	8808	1.70	−0.43	*Cr*	1.99	−0.75	*Cr*
	8810	−1.98	−0.21	*Os*	−1.66	−1.84	*Os*
	8815	−1.58	1.34	*Os*	−0.73	0.22	*Os*
	8816	−2.02	−0.13	*Os*	−1.91	−0.61	*Os*
	8817	−1.22	0.19	*Os*	−1.02	−0.92	*Os*
	8818	−1.52	0.11	*Os*	−1.48	−1.64	*Os*
	8892	0.46	−0.60	*Cr*	1.57	−0.89	*Cr*
	8893	0.65	0.30	*Cr*	1.17	−1.28	*Cr*
	8894	1.66	1.33	*Cr*	2.86	−0.07	*Cr*
	8895	−2.04	0.57	*Os*	−1.63	−1.15	*Os*
	8896	−1.09	0.70	*Os*	−1.18	0.85	*Os*
	8898	2.68	1.15	*Cr*	2.78	1.50	*Cr*
	8938	−2.22	−0.30	*Os*	−1.15	−2.55	*Os*
	9030	2.40	−0.42	*Cr*	1.13	1.24	*Cr*

Note: Values for each plastron on the first two principal components (K1 and K2) are for pure data (column I) and log-log transformed data (column II). For discussion, see appendix 1. Abbreviations as in table 3.

Table 5
Bone and Shell Fragments: Percentages in Four Major Collections (Periods III and IV)

Collection	Material	Period III	Period IV
Chia-pien	Bone	666 (40%)	262 (97%)
	Shell	1004 (60%)	7 (3%)
Jimbun	Bone	12 (12.5%)	307 (100%)
	Shell	84 (87.5%)	0 (0%)
Menzies	Bone	589 (96%)	523 (92%)
	Shell	23 (4%)	47 (8%)
White	Bone	116 (63%)	128 (64%)
	Shell	68 (37%)	72 (36%)

Note: See the notes to table 32; for a discussion of these figures see appendix 2, sec. 1; ch. 1, n. 32.

Table 6
The Major Diviners and their Periods

Period	Diviners	
I	(Pin 宾)	(Yung 永)
	(Ch'üeh 㱿)	
	(Cheng 争)	(Nei 内)
	(Hsüan 亘)	(Wei 韋)
	(Chung[?] 𠁩)	(Shih 史 or 事)
		(Fu 箙)
RFG		
	(Shao 勺)	
	(Tui 𠂤)	(Hsieh 叶)
	(Yü 余)	
	(Tzu 子)	(Ya 亞)
	(Wo 我)	
II	(Ta 大)	(Chung 中)
	(Lü 旅)	(Kua 冎 [?])
	(Hsing 行)	(Hsi 喜)
	(Chi 即)	(Chu 逐 [?])
	(Yin 尹)	(Shih 豕)
	(Yi 矣)	
	(Hsiung 兄)	(Yang 漾)
	(Ch'u 出)	(Chih 陟)
III	(K'ou 口)	(Chu 宁)
	(Ho 何)	(Hsien 員 [?])
	(P'eng 彭)	
	(Chu 壴)	(Chuan 專)
	(Ta 大)	
		(Li 歷)

Sources: This list is derived from S557–576; Ch'en Meng-chia (1956), p. 205; Jao (1959).

Note: The fifty-two diviners listed in this table represent less than half the total number of diviners recorded in the inscriptions (see ch. 2, n. 13): I have arbitrarily excluded those who appear on less than ten fragments. In most cases, the floruit of the diviners listed above has been firmly established, but I make no attempt here to indicate cases of spill-over (see ch. 4, n. 39); nor do I attempt to separate the diviners of period IIa and IIb, for instance. The modern graphs and romanizations given are frequently speculative; no attempt has been made to indicate graphic variants. On the diviners of the RFG, see in particular Tung (1949), p. 278; Kaizuka and Itō (1953); Ch'en Meng-chia (1956), pp. 145–155, 158–167. Kaizuka and Itō, pp. 31–32, give reasons why several graphs, formerly taken as diviners' names, were not diviners' names. Yen Yi-p'ing (1961), pp. 490–492, effectively demonstrates that Wu 午, the eponym of Ch'en Meng-chia's Wu diviner group (of the RFG), was not a diviner's name. On the date of the RFG diviners, see ch. 2, n. 18.

Table 7
Preface and Postface Formulas

Formula		Period				
		I	RFG	$_a\text{II}_b$	III+IV	V
1. Preface with 卜 and 貞						
1.1	甲子卜X貞					
1.1.1	甲子X卜貞					
1.1.2	甲子卜貞X					
1.2	甲子王卜貞					
1.2.1	王卜貞					?
1.2.2	甲子卜王貞					
1.3	甲子卜貞					
1.4	甲子卜X貞曰					
1.4.1	甲子卜X曰貞					
1.4.2	甲子卜X貞卜曰					
1.4.3	甲子卜X貞王曰					
1.4.4	甲子卜王貞曰					
1.4.5	甲子卜王曰貞					
1.4.6	甲子卜曰貞	?	?			
1.5	甲子卜X在Y貞					
1.5.1	甲子卜王在Y貞					
1.5.2	甲子卜在Y貞					
2. Preface with 卜 alone						
2.1	甲子X卜					
2.1.1	甲子卜X			?		
2.2	甲子王卜					
2.2.1	甲子卜王					
2.3	甲子卜			?		
2.4	甲子卜X曰					
2.4.1	甲子卜王曰					
2.4.2	甲子王卜曰					
2.4.3	甲子卜曰	?				
2.5	甲子卜X在Y卜					
2.5.1	甲子卜王在Y卜					
2.5.2	在Y卜	?				
2.5.3	在宗卜	?			?	
2.6	幾月卜					
2.6.1	夕卜		?			
3. Preface with 貞 alone						
3.1	甲子X貞					
3.2	甲子王貞					
3.3	甲子貞			?		
3.3.1	貞					
3.4	甲子X貞曰					
3.4.1	甲子X貞王曰					
3.4.2	貞王曰					
3.4.3	王曰貞			?		
3.4.4	貞曰					
4. Miscellaneous						
4.1	甲子					
4.2	曰					
4.3	no preface					

Table 7 (continued)

Formula	Period				
	I	RFG	$_a\text{II}_b$	III + IV	V
Total number of variants per period (including uncertain cases)	24	18	25	12	12
Percentage of total number (44) possible	55%	41%	57%	27%	27%

Note: X stands for the diviner, Y for a place name. As with the epigraphic variants given in table 26, the chronological distribution of the preface and postface formulas is not firmly established in all cases. For particular formulas, see the following studies: **1.1**: Tung Tso-pin (1933), p. 405; Kaizuka and Itō (1953), p. 14; Ch'en Meng-chia (1956), pp. 142, 159–160; Yen Yi-p'ing (1961), p. 540. **1.1.1**: Ch'en Meng-chia (1956), pp. 159–160. **1.2**: Kaizuka (1946), p. 210; *Jimbun shakubun*, English preface, p. 18. **1.2.1**: Yen Yi-p'ing (1961), p. 490. **1.2.2**: Jao (1959), p. 62. **1.3**: Kaizuka and Itō (1953), p. 14; Ch'en Meng-chia (1956), p. 142; *Jimbun shakubun*, English preface, p. 18; Chou Hung-hsiang (1969), p. 65; Hsü Chin-hsiung (1973a), p. 124. **1.4**: Jao (1959), p. 51. **1.4.1**: Jao (1959), p. 51. **1.4.4**: Jao (1959), pp. 62–63. **1.4.5**: Itō (1956), p. 35, n. 47; Jao (1959), p. 63; *Jimbun* 1460, *shakubun*, p. 405, n. 1. **1.4.6**: Jao (1959), pp. 52–53. **2.1**: Ch'en Meng-chia (1956), pp. 159–160. **2.1.1**: Ch'en Meng-chia (1956), pp. 159–160; Jao (1959), p. 65; Chou Hung-hsiang (1969), pp. 63–64; Li Yen (1972), pp. 10–11. **2.2**: Jao (1959), p. 62; *Chia-pien* 2242, *k'ao-shih*, p. 282; cf. *Chia-pien* 104, *k'ao-shih*, p. 18. **2.2.1**: Jao (1959), pp. 60–61, 65; Hsü Chin-hsiung (1973a), p. 48. **2.3**: Kaizuka and Itō (1953), p. 14; Ch'en Meng-chia (1956), p. 142; Chou Hung-hsiang (1969), pp. 66–67; Hsü Chin-hsiung (1973a), pp. 120–122; (1974), pp. 67, 251. **2.4**: Jao (1959), p. 50. **2.4.1**: Jao (1959), p. 63. **2.4.2**: Jao (1959), p. 63. **2.4.3**: Jao (1959), p. 52. **2.5.1**: Jao (1959), p. 64. **2.5.2**: S505.3–4. **2.5.3**: S505.2. **2.6**: S505.2–3; Ch'en Meng-chia (1956), p. 236. **2.6.1**: S505.2. **3.3**: Kaizuka (1946), p. 210; Kaizuka and Itō (1953), p. 14; Ch'en Meng-chia (1956), p. 142; *Jimbun shakubun*, English preface, p. 18; Chou Hung-hsiang (1969), p. 66; Hsü Chin-hsiung (1974), pp. 241, 247–249. **3.3.1**: Chou Hung-hsiang (1969), pp. 62–63. **3.4.2**: Jao (1959), p. 64. **3.4.3**: Hu Hou-hsüan (1959), p. 91, n. 2; *Jimbun* 1460, *shakubun*, p. 405, n. 1. **3.4.4**: Jao (1959), p. 52. **4.3**: Chou Hung-hsiang (1969), pp. 64–65, 67–68.

Table 8

Pigmentation on *Ping-pien*

12–21

Ping-pien Plastron	Front	Back
12/13	brown	brown
14/15	brown	black
16/17	brown	black
18/19	brown	black
20/21	brown	brown

Source: *Ping-pien k'ao-shih*. See too ch. 3, n. 122.

Table 9
Oracle-bone Collections and their Associated Commentaries

Collection	Commentary Supplied	Separate Commentaries
Ch'eng-chai	Yes	
Ch'i-chi	No	See *Pai-ken* for "B" (Bergen Collection); Britton (1940) for "P" (Princeton Collection); *Hai-wai* for "W" (Wilhelm Collection); Hu Hou-hsüan (1973a) for "X" (Sun Collection).
Chia-pien	No	*Chia-pien k'ao-shih*
Chien-shou	Yes	Hsü Ching-ts'an (1935). For fragments duplicated in other collections which may have commentaries, see Mickel (1976a).
Ch'ien-pien	No	Yeh Yü-sen (1934); Wu ch'i-ch'ang (1971) for first 37 pages of *Ch'ien-pien*. For fragments duplicated in other collections which may have commentaries, see Mickel (1974).
Chih-hsü	Yes	
Chih-yi	Yes	
Ching-hua	No	For fragments duplicated in other collections which may have commentaries, see Mickel (1976a).
Cho-ts'un	Yes*	
Chui-ho	No	Reassembles *Chia-pien* and *Yi-pien* fragments; commentaries may be found in *Chia-pien k'ao-shih* and *Ping-pien*.
Fu-chia	Yes	For fragments duplicated in other collections which may have commentaries, see Mickel (1977).
Fu-yin	Yes	For fragments duplicated in other collections which may have commentaries, see Mickel (1977).
Hai-wai	Yes	
Han-ch'eng	Yes	
Hou-pien	No	Ikeda (1964). For fragments duplicated in other collections which may have commentaries, see Mickel (1974).
Hsia-men	Yes	
Hsü-pien	No	For fragments duplicated in other collections which may have commentaries, see Mickel (1974a).
Jimbun	Yes	
Kikkō	No	For fragments duplicated in other collections which may have commentaries, see Mickel (1976a).
K'u-fang	No	Ch'en Meng-chia (1956), p. 652, lists fakes; cf. ch. 5, n. 35.
Ling-shih	Yes	
Liu-lu	Yes	

Table 9 (continued)

Collection	Commentary Supplied	Separate Commentaries
Menzies	No	Published as *Volume II: The Text.*
Na-erh	Yes	
Ogawa	Yes	
Pai-ken	Yes	
Ping-pien	Yes	
Pu-tz'u	Yes*	For fragments duplicated in other collections which may have commentaries, see Mickel (1977).
T'ai-ta 1 and *2*	Yes	
T'ieh-shih	Yes	
T'ieh-yi	Yes	For fragments duplicated in other collections which may have commentaries, see Mickel (1977).
T'ieh-yü	No	For fragments duplicated in other collections which may have commentaries, see Mickel (1976a).
T'ieh-yün	No	Pao Ting (1931). For fragments duplicated in other collections which may have commentaries, see Mickel (1976a).
T'ien-jang	Yes	
Ts'ui-pien	Yes	
Ts'un-chen	Yes[a]	For fragments duplicated in other collections which may have commentaries, see Mickel (1977).
Tung (1929a)	No	For fragments duplicated in other collections which may have commentaries, see Mickel (1977).
T'ung-tsuan	Yes	
Wai-pien	Yes*	
Wen-lu	Yes	See too *Ts'un-chen*, where many of these fragments were first published.
White	Yes	
Yi-chu	Yes	
Yi-pien	No	Matsumaru (1973), p. 18, refers to "a very small number of mimeographed copies of tentative interpretations . . . produced in 1959 by Akatsuka Kiyoshi, Katō Michitada, and Matsumaru Michio." For an index to *Yi-pien* fragments reassembled and commented in *Ping-pien*, see T'ang Chien-yüan (1969; 1974).
Yi-ts'un	Yes	For fragments duplicated in other collections which may have commentaries, see Mickel (1977).
Yin-hsü	No	For fragments duplicated in other collections which may have commentaries, see Mickel (1976a).

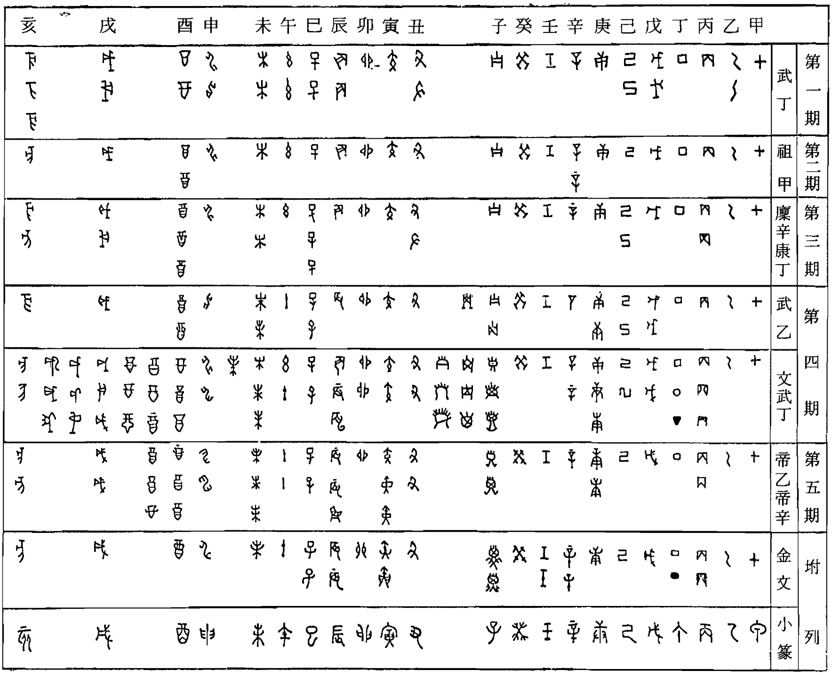
Note: This is not an exhaustive list; only the main collections and commentaries are given.

* The commentary consists primarily or exclusively of a modern graph transcription.

[a] I have not seen this commentary. It is cited by both Jung Keng (1947), p. 24, and Hu Hou-hsüan (1952), 112.

Table 10

Epigraphic Evolution: Tung Tso-Pin's Kan-Chih Table


亥 戌 酉 申 未 午 巳 辰 卯 寅 丑 子 癸 壬 辛 庚 己 戊 丁 丙 乙 甲
武丁
第一期
祖甲
第二期
廩辛康丁
第三期
武乙
第四期
文武丁
帝乙帝辛
第五期
金文
附列
小篆

Source: Kaizuka and Itō (1953), table 2; see too ch. 4, n. 71.

Table 11
Inscriptions, Hollows, and Crack Notations
(*Ping-Pien* 12–21)

	Topic	Linked to crack burned in hollow*	Crack notations
	Charges on *Ping-pien* 12, 14, 16, 18, 20 (plastron front)		
(1) (2)	follow/not follow Wang Ch'eng	H1 H2	
(3) (4)	follow/not follow Chih Kuo	H9 H10	
(5) (6)	be/not be Chih Kuo that king follows	H17 H18	
(7)	sacrifice to Fu Keng	H5	
(8)	lead away sick tooth	H6	*hsiao-chi*
(9) (10)	sick tooth will/will not be favorable	H21 H22	
	Charges on *Ping-pien* 13, 15, 17, 19, 21 (plastron back)		
(1) (2)	it is/is not because of Fu Chia	H3, H7 H4, H8	
(3) (4)	it is/is not because of Fu Keng	H11 H12	
(5) (6)	it is/is not because of Fu Hsin	H13, H15 H14, H16	*shang-chi* (H15) *hsiao-chi* (H16)
(7) (8)	it is/is not because of Fu Yi	H19, H23 H20, H24	
	inscriptionless divinations	H25–H32	

Note: The full text of this plastron set is given in sec. 3.7.1.2

*The hollow numbers are those given in figure 23.

Table 12
Hollows, *Kan-Chih* Days, and Prognostications
(*Ping-Pien* 12–21)

Putative hollow*	Day presumably mentioned in unrecorded subcharge	Prognostication about the natural phenomenon
H25	wu-yin (day 15)	if a wu day, inauspicious
H26	ting-ch'ou (day 14)	if ting-ch'ou, inauspicious
H27	ping-tzu (day 13)	
H28	yi-hai (day 12)	
H29	chia-hsü (day 11)	if a chia day, auspicious
H30	kuei-yu (day 10)	
H31	jen-shen (day 9)	
H32	hsin-wei (day 8)	if a hsin day, inauspicious

Note: For an interpretation of the data in this table, see sec. 3.7.4.2, especially ch. 3, n. 119.

*The hollow numbers are those given in fig. 23.

Table 13

Oracle-bone Collections and their Inscriptions Periodized by Commentaries

Collection	Periodization
Chia-pien	*Chia-pien k'ao-shih* assigns a date to virtually all the inscriptions.
Chien-shou	Contains inscriptions from period I, RFG, and period III (Tung [1949], p. 233).
Ch'ien-pien	Many of the inscriptions in ch. 1, pp. 1–30, are period V sacrifice inscriptions (but *Ch'ien-pien* 1.2.6; 1.8.8; 1.15.3; 1.22.6; 1.23.2 [S567] were divined by the period IIb diviner, Lü 旅); ch. 2 contains mainly period V *kan-chih* tables (Chu [1935], ch. 6, p. 21b). Wu Ch'i-ch'ang (1971) frequently discusses the date of *Ch'ien-pien* 1.1.1 to 1.37.7. *Chüan* 8 contains many Tzu 子 group (RFG) inscriptions (Ch'en Meng-chia [1956], p. 159).
Ching-chin	*Ching-chin* 1–3160 (period I); 3161–3802 (period II); 3803–4986 (period III+IV); 4987–5642 (period V). Hu Hou-hsüan also suggests in his preface (p. 1b) that 2908–3160 might be assigned to the period prior to Wu Ting (or to period IV). This is unlikely (see ch. 4, n. 24); I would assign them to the RFG.
Ching-hua	Contains inscriptions from periods I, II, and V (Tung [1949], p. 233).
Hou-pien	Ikeda (1964) assigns a date (sometimes tentative) to virtually all the inscriptions. *Hou-pien* 2.41–2.43 contains many Tzu 子 group (RFG) inscriptions (Ch'en Meng-chia [1956], p. 159).
Hsü-pien	Same as *Ching-hua.*
Hsü-ts'un	*Hsü-ts'un* 1.1–1465; 2.1–598 (period I); 1.1466–1727; 2.599–730 (period II); 1.1728–2270; 2.731–861 (period III+IV); 1.2271–2755; 2.862–998 (period V). Hu Hou-hsüan also suggests in his preface (p. 1) that 1.1433–1465 and 2.579–598 might be assigned to the period prior to Wu Ting (or to period IV). This is unlikely (see ch. 4, n. 24); I would assign them to the RFG.
Jimbun	*Jimbun* 1–1250 (period I); 1251–1681 (period II); 1682–1777 (period III); 1778–2257 (period III+IV); 2258–2564 (period IV [but Chang Tsung-tung would date to period II; see ch. 4, n. 44]); 2565–2977 (period V); 2978–3246 (RFG); 3247–3256 are commented on individually.
K'u-fang	Same as *Ching-hua.* For a list of fakes, see ch. 5, n. 35.
Liu-lu	Commentary assigns a date to all inscriptions.
Menzies	*Menzies* 1–1168 (period I); 1169–1645 (period II); 1646–2259 (period III); 2260–2831 (period IV [but see ch. 2, n. 18; ch. 4, nn. 62, 161]); 2832–3176 (period V).
Nan-pei	The fragments are arranged chronologically (preface, p. la), but no numerical key is provided; presumably an inscription may be dated by dating the inscriptions to either side of it.
Ping-pien	*Ping-pien k'ao-shih* periodizes every restored plastron. Chang Ping-ch'üan places them all in period I, with the exception of *Ping-pien* 59, 60, and 609 (period II); 610 (period III); 611–614 (period IV); and 57/58 (reign of P'an Keng [but on this dating, see ch. 4, n. 24; appendix 4, n. 19]). I believe that all the *Ping-pien* plastrons should be dated to period I or RFG.
T'ieh-yi	Same as *Chien-shou.*
T'ieh-yü	Contains inscriptions from period I, RFG, and II (Tung [1933], pp. 354–355; [1949], p. 233).
T'ieh-yün	Majority of the fragments may be dated to period I, a few to early II (the diviners Ch'u 出, Hsi 喜, Hsiung 兄, Ta 大); there are 12 RFG inscriptions (Kaizuka and Itō [1953], pp. 57–58).
Ts'ui-pien	Commentary occasionally dates an inscription. Contains many period IIIb–IVb inscriptions (Ch'en Meng-chia [1956], p. 145; cf. Tung [1949], p. 233).
Yi-chu	*Yi-chu* 621–701 are from period IIIb–IVb (Ch'en Meng-chia [1956], p. 145).
Yi-pien	*Yi-pien* 487–8500, 8663–8673 come from pit YH127, which contained, in my view, only period I and RFG inscriptions (but cf. ch. 2, n. 18). Many *Yi-pien* fragments are reassembled in *Ping-pien.*

Table 13 (continued)

Collection	Periodization
Yi-ts'un	*Yi-ts'un* 194–254 are from period IIIb–IVb (Ch'en Meng-chia [1956], p. 145; cf. Tung [1949], p. 233).
Yin-hsü	Contains many inscriptions from period III + IV (Tung [1949], p. 233).
White	*White* 1–1009 (period I); 1010–1297 (period II); 1298–1480; 1916 (period III); 1481–1680 (period IV [but see ch. 2, n. 18; ch. 4, nn. 62, 161]); 1681–1915 (period V).

Note: For pieces which appear in other collections, but which may be duplicated and thus periodized in the collections listed here, see Table 9.

Table 14
The Five Periods

Tung Tso-pin's Five Periods	Tung's Periods Subdivided	Approx. Date*	The Kings	Tung's Schools	Span
I		1240–1181	P'an Keng (K18)	Old	2 generations, 4 kings
			Hsiao Hsin (K19)	Old	
			Hsiao Yi (K20)	Old	
	Ia, Ib	1200–1181	Wu Ting (K21)	Old	
II	IIa	1180–1171	Tsu Keng (K22)	Old	1 generation, 2 kings
	IIb	1170–1151	Tsu Chia (K23)	New	
III	IIIa	1150–1131	Lin Hsin (K23A)	New	1 generation, 2 kings
	IIIb	or 1121	Keng Ting (K24)	New	
IV	IVa	1130–1116 or 1120–1106	Wu Yi (K25)	Old	2 generations, 2 kings
	IVb	1115–1101 or 1105–1091	Wen Wu Ting (K26)	Old	
V	Va	1100–1051	Ti Yi (K27)	New	2 generations, 2 kings
	Vb	or 1090–1041	Ti Hsin (K28)	New	

Note: For the reason why period I should effectively be reduced to the reign of Wu Ting, see ch. 4, n. 24. For periods Ia and Ib, see ch. 4, n. 5. For the possibility that Lin Hsin did not reign, see table 1, note *h*.

*According to the revised short chronology (table 38).

Table 15
The Names of the Shang Kings

Accession number and position in ritual cycle	Name(s) in oracle inscriptions	Name(s) in *Ku-pen chu-shu chi-nien*	Name(s) in *Shih-chi*	Name(s) in other Chou or Han texts*
K1 ⑦	Ta Yi 大乙 (S515.4); T'ang 唐 (S517.3); Ch'eng 成 or Hsien 咸 (?) (S517.1)[a]	T'ang 湯	T'ien Yi 天乙 Ch'eng T'ang 成湯	T'ien Yi T'ang 天乙湯; Ch'eng T'ang 成唐; Hsien 咸[b]
			Wu Wang 武王[c]	Wu T'ang 武湯
K2 ⑧	Ta Ting 大丁 (S518.1)		T'ai Ting 太丁	
K3 ⑨	Ta Chia 大甲 (S519.1)	Ta Chia 大甲	T'ai Chia 太甲 Ti T'ai Chia 帝太甲[d]	
K4 ⑩	Pu Ping 卜丙 (S520.2) [Tsu Ping 祖丙 (S537.3)?][e]	Wai Ping Sheng 外丙勝	Wai Ping 外丙	
K4A	[Nan Jen 南壬 ?][f]	Chung Jen 仲壬	Chung Jen 中壬 Ti Chung Jen 帝中壬	
K4B	[Ch'iang Ting 羌丁 ?][g]	Wu Ting Hsüan 沃丁絢	Wu Ting 沃丁 Ti Wu Ting 帝沃丁	
K5 ⑪	Ta Keng 大庚 (S520.3)	Hsiao Keng Pien 小庚辨[h]	T'ai Keng 太庚 Ti T'ai Keng 帝太庚	
K6 ⑫	Hsiao Chia 小甲 (S521.1)	Hsiao Chia Kao 小甲高[i]	Hsiao Chia 小甲 Ti Hsiao Chia 帝小甲	
K7 ⑬	Ta Wu 大戊 (S521.2) T'ien Wu 天戊[j] Tsu Wu 祖戊 (?)[k]		T'ai Wu 太戊 Ti T'ai Wu 帝太戊	
K8 ⑭	Lü Chi 呂己 (S521.4)	Yung Chi Chou 雍己伷	Yung Chi 雍己 Ti Yung Chi 帝雍己	
K9 ⑮	Chung Ting 中丁 (S522.1) San Tsu Ting 三祖丁 (S531.3)[l]	Chung Ting 仲丁	Ti Chung Ting 帝中丁	
K10 ⑯	Pu Jen 卜壬 (S522.3)	Wai Jen 外壬	Wai Jen 外壬 Ti Wai Jen 帝外壬	

Table 15 (continued)

Accession number and position in ritual cycle	Name(s) in oracle inscriptions	Name(s) in *Ku-pen chu-shu chi-nien*	Name(s) in *Shih-chi*	Name(s) in other Chou or Han texts*
K11 ⑰	Ch'ien Chia 戔甲 (S522.3)	Ho Tan Chia Cheng 河亶甲整	Ho Tan Chia 河亶甲 Ti Ho Tan Chia 帝河亶甲	Cheng Chia 整甲
K12 ⑱	Tsu Yi 祖乙 (S522.4) Chung Tsung Tsu Yi 中宗祖乙 (S270.3) Kao Tsu Yi 高祖乙 (S526.2)[m] Hsia Yi 下乙 (S526.3) Ju Yi 入乙 (S526.4) (?)[n]	Tsu Yi T'eng 祖乙滕 Chung Tsung 中宗	Tsu Yi 祖乙 Ti Tsu Yi 帝祖乙	
K13 ⑲	Tsu Hsin 祖辛 (S527.1)[o]		Tsu Hsin 祖辛 Ti Tsu Hsin 帝祖辛	
K14 ⑳	Ch'iang Chia 羌甲 (S528.3) Lung Chia 龍甲 (S529.2)[p]	Ti K'ai Chia 帝開甲	Wu Chia 沃甲 Ti Wu Chia 帝沃甲	
K15 ㉑	Tsu Ting 祖丁 (S529.3) Hsiao Ting 小丁 (S531.2)[q] Ssu Tsu Ting 四祖丁 (S531.3)[r]	Tsu Ting 祖丁	Tsu Ting 祖丁 Ti Tsu Ting 帝祖丁	
K16 ㉒	Nan Keng 南庚 (S531.4) Tsu Keng 祖庚 (S534.1)[s]	Nan Keng Keng 南庚更	Nan Keng 南庚 Ti Nan Keng 帝南庚	
K17 ㉓	Hsiang (?) Chia 魯甲 (S532.2)[t] Fu Chia 父甲 (S545.1) Tsu Chia 祖甲 (S534.1)[u]	Yang Chia 陽甲	Yang Chia 陽甲 Ti Yang Chia 帝陽甲	
K18 ㉔	P'an Keng 般庚 (S533.1) Fu Keng 父庚 (S549.1)[v] Tsu Keng 祖庚 (S534.4)[w] San Tsu Keng 三祖庚 (?) (S535.1)[x]	P'an Keng Hsün 盤庚旬	Ti P'an Keng 帝盤庚	P'an Keng 盤庚

Table 15 (continued)

Accession number and position in ritual cycle	Name(s) in oracle inscriptions	Name(s) in *Ku-pen chu-shu chi-nien*	Name(s) in *Shih-chi*	Name(s) in other Chou or Han texts*
K19 ㉕	Hsiao Hsin 小辛 (S533.1) Fu Hsin 父辛 (S550.2)[y] Erh Tsu Hsin 二祖辛[z]	Hsiao Hsin Sung 小辛頌	Hsiao Hsin 小辛 Ti Hsiao Hsin 帝小辛	
K20 ㉖	Hsiao Yi 小乙 (S533.2) Fu Yi 父乙 (S545.1) Hsiao Tsu Yi 小祖乙 (S533.4) Hou Tsu Yi 后祖乙 (S534.1)[aa]	Hsiao Yi Han 小乙斂	Hsiao Yi 小乙 Ti Hsiao Yi 帝小乙	
K21 ㉗	Wu Ting 武丁 (S534.2) Fu Ting 父丁 (S547.4) Tsu Ting 祖丁 (S530.3) Hou Tsu Ting 后祖丁 (S531.4)[ab] Ti Ting 帝丁 (?) (S537.4)[ac]		Ti Wu Ting 帝武丁	Kao Tsung 高宗
㉘	Tsu Chi 祖己 (S534.4)[ad] Hsiung Chi 兄己 (S554.1) Fu Chi 父己 (S549.3) Hsiao Wang Fu Chi 小王父己 Chung Chi 中己[af]		Tsu Chi 祖己[ae]	Hsiao Chi 孝己
K22 ㉙	Tsu Keng 祖庚 (S534.4) Hsiung Keng 兄庚 (S554.2) Fu Keng 父庚 (S549.4)[ag]	Tsu Keng Yao 祖庚曜	Ti Tsu Keng 帝祖庚	
K23 ㉚	Tsu Chia 祖甲 (S535.1) Fu Chia 父甲 (S545.1) Ti Chia 帝甲[ai]	Ti Chia Tsai 帝甲載 Ho Chia 和甲[ah]	Tsu Chia 祖甲 Ti Chia 帝甲	

Table 15 (continued)

Accession number and position in ritual cycle	Name(s) in oracle inscriptions	Name(s) in *Ku-pen chu-shu chi-nien*	Name(s) in *Shih-chi*	Name(s) in other Chou or Han texts*
K23A	San Tsu Hsin 三祖辛 (S528.3) Hsiung Hsin 兄辛 (S554.3) Fu Hsin 父辛 (S550.2)[aj]	Feng Hsin 馮辛	Ti Lin Hsin 帝廩辛	
K24 ㉛	Keng Ting 庚丁 (S535.4) Keng Tsu Ting 庚祖丁 (S535.4) Keng 庚 Fu Ting 父丁 (S547.4)[ak]	Keng Ting 庚丁	Keng Ting 庚丁 Ti Keng Ting 帝庚丁	
K25 ㉜	Wu Yi 武乙 (S536.2) Wu Tsu Yi 武祖乙 (S536.2) Wu 武 Fu Yi 父乙 (S545.4)[al]	Wu Yi 武乙	Ti Wu Yi 帝武乙	
K26 ㉝	Wen Wu Ting 文武丁 (S537.2) Wen Wu 文武 Fu Ting 父丁 (S547.4)[ao]	Wen Ting 文丁 Ta Ting 大丁 T'ai Ting 太丁[an]	Ti T'ai Ting 帝太丁 [am]	
K27 ㉞	Fu Yi 父乙 (?)[ap]	Ti Yi 帝乙	Ti Yi 帝乙	
K28 ㉟		Ti Hsin Shou 帝辛受 Ti Shou Hsin 帝受辛 Yin Chou 殷紂	Ti Hsin 帝辛 Chou 紂	

Sources: Ch'en Meng-chia (1956), pp. 402–403; Chou Hung-hsiang (1958); Ch'ü Wan-li (1965a), pp. 99–100. This table should be read in conjunction with table 1 and its notes.

* Only given when the names differ from those found in *Ku-pen chu-shu chi-nien* and *Shih-chi*.

[a] Most scholars believe Ta Yi's name was Ch'eng 成, oracle-bone form (e.g., *CKWT*, pp. 4257–4259). For the view that his name was Hsien 咸, oracle-bone form , or that the Shang made no distinction between the two graphs, see *Ping-pien* 41.16-19, *k'ao-shih*, pp. 72–75; Li Yen (1967), pp. 5–7; Chang Ping-ch'üan (1967a), p. 712. Cf. note *b*.

[b] *Shang-shu*, "Chiu kao," par. 9. See Hu Hou-hsüan (1959), pp. 89–90; Chang Tsung-tung (1970), p. 204, n. 7.

[c] *SKK*, ch. 3, p. 10.

[d] *SKK*, ch. 3, p. 15. Ssu-ma Ch'ien frequently adds the prefix Ti to the names of the Shang kings. In most of the cases there is no oracle-bone support for such usage, but it may reflect emerging Shang practice, evident in the cases of K21, K24, and K26.

[e] Wu Ch'i-ch'ang (1971), p. 269, citing *Ch'ien-pien* 1.22.8; but the identification is uncertain.

[f] Tung (1933), pp. 332–333, citing *Ch'ien-pien* 1.45.4; cf. Chou Hung-hsiang (1958), pp. 80–81. But both the reading and identification are uncertain.

[g] Chou Hung-hsiang (1958), p. 88, citing *Ch'ien-pien* 5.8.5, for which the reading and identification are uncertain. He also cites *Shan-chai* 善齋 2331, which I have not been able to consult.

[h] The *hsiao*, instead of the expected *ta*, may have been due to scribal confusion with the name of Hsiao Chia (K6).

Table 15 (continued)

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[i] Chou Hung-hsiang (1958), p. 91, raises the possibility that a *hsien kung* 先公, "former lord," in the inscriptions was indeed the Hsiao Chia Kao of *Chi-nien*.

[j] Chou Hung-hsiang (1958), p. 97, citing *Ch'ien-pien* 4.16.4 (S521.4).

[k] Chou Hung-hsiang (1958), p. 97, citing *Ch'ien-pien* 1.23.2; but cf. Tung (1949a), pp. 285–286, who regards this Tsu Wu as an older brother of Tsu Chia (K23).

[l] Shima (1958), p. 85. The four Tsu Tings are thought to be Pao Ting (④), Ta Ting (K2), Chung Ting (K9) and Tsu Ting (K15). Chou Hung-hsiang (1958), p. 99, also attributes the title of *ssu tsu ting* 四祖丁 to Chung Ting (K9), but this title is generally taken to refer to K15; see Ikeda (1964), 1.3.10.

[m] Ch'en Meng-chia (1956), pp. 415–416; Ikeda (1964), 1.3.7. But cf. *Jimbun* 1786, *shakubun*, p. 452, n. 1.

[n] On the titles Hsia Yi and Ju Yi, see Ch'en Meng-chia (1956), pp. 413–414; Shima (1958), p. 84; Ikeda (1964), 1.8.2; Chang Tsung-tung (1970), p. 203, n. 12. Chou Hung-hsiang (1958), p. 104, n. 1; p. 127, n. 1, says that K12's title was also Shang Yi 上乙, but he cites no inscriptions.

[o] Tsu Hsin (K13), Hsiao Hsin (K19), and Lin Hsin (K23A) are the three Hsin ancestors recorded in the inscriptions. Hsiao Hsin was known as "the second" (Ch'en Meng-chia [1956], p. 433; *Chia-pien* 636.4, *k'ao-shih*, p. 100). Chou Hung-hsiang (1968), p. 124, n. 1, suggests that Hsiao Hsin was also called Tsu Hsin. He cites *Ts'ui-pien* 250, but the inscription will not readily accept such an interpretation. The ancestors listed are 丁, 祖乙, 祖丁, 羌甲, and 祖辛. If Tsu Hsin refers to Hsiao Hsin (K19), the order would be K9, K12, K15, K14, K19, which is irregular. More plausible is the order Kuo Mo-jo suggests in his *k'ao-shih*: K21, K20, K15, K14, K13, with Tsu Hsin referring indeed to Tsu Hsin (K13).

[p] Jao (1959), pp. 137–138, argues that Lung Chia was Hsiang (?) Chia (K17). Shima (1958), p. 85, however, citing *Ts'ui-pien* 272 (S529.3), gives cogent reasons for equating Lung Chia with Ch'iang Chia (K14).

[q] Shima (1958), pp. 85, 86; *Chia-pien* 608, *k'ao-shih*, p. 94; *Jimbun* 1803, *shakubun*, p. 460, n. 2.

[r] See note *l*, above.

[s] In period I inscriptions, K16 was called Tsu Keng. This title was subsequently applied to P'an Keng (K18) and Tsu Keng (K22); hence, we cannot always tell in the later inscriptions to which ancestor the title of Tsu Keng refers. For the problems involved, see Ch'en Meng-chia (1956), p. 431; Shima (1958), p. 89.

[t] On the identification of the graph for Hsiang (?) see ch. 4, n. 23.

[u] K17 was naturally called Fu Chia in period I, and Tsu Chia in periods II and III. In IV and V, however, the title of Tsu Chia appears to have been applied to Tsu Chia (K23) and not to K17 (Shima [1958], p. 86); cf. note *ah* below.

[v] In period I, the title Fu Keng was used to refer to P'an Keng (K18); see sec. 4.3.1.1. In period III, Fu Keng referred to Tsu Keng (K22).

[w] See note *s* above.

[x] Chou Hung-hsiang (1958), p. 121, citing *Ch'ien pien* 1.19.3. There were four Keng ancestors—Ta Keng (K5), Nan Keng (K16), P'an Keng (K18), and Tsu Keng (K22)—and P'an Keng was the third. But the number 3 on this inscription may be a crack number (Ch'en Meng-chia [1956], pp. 431–432).

[y] In period I, Fu Hsin referred to Hsiao Hsin (K19); in III+IV, it referred to Lin Hsin (K23A).

[z] See note *o* above.

[aa] Shima (1958), p. 87, periodizes the various titles used to refer to K20. Fu Yi was used only in period I. According to Ch'en Meng-chia (1956), p. 418, the title of Hsiao Yi was applied to K20 in period IIb to distinguish him from Tsu Yi (K12); Shima, however, believes that the title of Tsu Yi was used to refer to Hsiao Yi (K20) in period II.

[ab] For K21's various titles by period, see Chou Hung-hsiang (1958), pp. 139–140; Shima (1958), p. 88.

[ac] Chang Tsung-tung (1970), p. 237, believes that the title Ti Ting refers to Wu Ting (K21). It appears in only two inscriptions, *Nan-pei*, "Fu" 62 (D) (S537.4) and *Ts'ui-pien* 376; cf. Itō (1967), p. 67. For a full discussion of the identity of Ti Ting, see Shirakawa (1957), pp. 71–77.

[ad] Tsu Chi is thought to have been a son of Wu Ting (K21) who did not come to the throne (*Jimbun* 1811, *shakubun*, p. 462, n. 2). For his various titles by period, see Ch'en Meng-chia (1956), p. 455; Chou Hung-hsiang (1958), pp. 143–144; Shima (1958), pp. 43–44. He was also one of the San Tsu 三祖 (viz., Tsu Chi [㉘], Tsu Keng [K22 ㉙], Tsu Chia [K23 ㉚]) who appear in period IV inscriptions (Chou Hung-hsiang [1958], p. 143, citing *Chia-pien* 627; *Nan-pei*, "Fu" 63 [D]).

[ae] Tsu Chi appears in *Shang-shu*, "Kao-tsung yung-jih," and in *Shih-chi*, "Yin pen-chi" (*SKK*, ch. 3, p. 23), admonishing the king. He has usually been taken as a sage minister, but the form of his name, kin title plus heavenly stem, strongly indicates he was of the royal lineage. Commentators generally agree that the Tsu Chi of the oracle bones is to be equated with Wu Ting's virtuous son, Hsiao Chi 孝己, who appears in Chan-kuo texts such as *Chuang-tzu* and *Hsün-tzu*, but there has been reluctance to equate the Tsu Chi of the Shang inscriptions with the Tsu Chi of *Shang-shu* and *Shih-chi*, for how could a son admonish his father (e.g. Chou Hung-hsiang [1958], pp. 141–142)? According to *Shih-chi*, Tsu Chi was still alive at the accession of Tsu Keng (K22).

[af] Shima (1958), p. 89, argues that this was a special period III term for Tsu Chi.

[ag] For the periodization of Tsu Keng's titles, see Chou Hung-hsiang (1958), p. 146, n. 6; Shima (1958), pp. 45, 89. See too note *s*.

Table 15 (continued)

[ah] As Wang Kuo-wei suggests, *ho* 和 was probably a scribal error for *tsu* 祖. Ch'en Meng-chia (1956), p. 402, and Ch'ü Wan-li (1965a), p. 99, both follow *Chin-pen chu-shu chi-nien* in attributing the title of Ho Chia to Hsiang Chia (K17); here I follow the correction of Wang Kuo-wei (Fan [1962], p. 22).

[ai] For the periodization of Tsu Chia's titles, see Chou Hung-hsiang (1958), p. 150; Shima (1958), p. 89. In periods II and III, the title Tsu Chia refers to K17; see note *u* above. For the identification of Ti Chia see Shima (1958), p. 186; Ikeda (1964), 1.4.16; Chang Tsung-tung (1970), p. 237.

[aj] For the titles by which this ancestor was known in the oracle bones, see Chou Hung-hsiang (1958), p. 152; Shima (1958), pp. 46–47, 74. Cf. table 1, note *h*.

[ak] For the occurrence of these titles, see Chou Hung-hsiang (1958), pp. 154–155; Shima (1958), p. 89. Chou's claim that K24 was called Hsiung Ting (on *Chia-pien* 3154) is in error (see Shima, p. 41).

[al] For these titles, see Chou Hung-hsiang (1958), pp. 158–160; Shima (1958), p. 89. The designation Fu Yi for K25 would appear only in period IVb (see note *ap*). The title Wu Yi or Wu Tsu Yi appears only in period V.

[am] Commentators take *t'ai* 太 as a mistake on the grounds that *Chi-nien* (supported by the oracle inscriptions) gives Wen Ting (see, for example, Takigawa's commentary in *SKK*, ch. 3, p. 25, cols. 3–4; Chou Hung-hsiang [1958], p. 161). But Ssu-ma Ch'ien (or his transmitters) may have written (and transmitted) what they intended. *Chi-nien*, after all, also refers to K26 as Ta Ting and T'ai Ting. The prefix is not supported by oracle-bone usage, but its appearance in both *Chi-nien* and *Shih-chi* suggests that it accurately records a Chou and Han tradition.

[an] K26 is called T'ai Ting in a *Chi-nien* quote found in *T'ung-chien wai-chi* 通鑑外紀 (Fan [1962], p. 23).

[ao] For these titles, see Chou Hung-hsiang (1958), pp. 162–163; Shima (1958), p. 90. Shima (p. 80) notes that nothing in the oracle bones indicates whether Wen Wu Ting (K26) was the son (as *Shih-chi* records him) or younger brother of Wu Yi (K25); a firm period IVb reference to Fu Yi 父乙 would resolve the issue (cf. note *ap*). The *Shih-chi* account is supported by the rules of succession and nomenclature proposed by Chang Kwang-chih (e.g., [1963], pp. 69–72).

[ap] Only one instance of a Fu Yi (*Ch'ien-pien* 1.26.1) that might be a period IVb reference to K25 has so far been discovered (Chou Hung-hsiang [1958], p. 166; Shima [1958], p. 91); but the date of this fragment, and hence the king referred to, cannot be firmly established.

Table 16

Chia, Keng, and Hsin Kings in *Shih-Chi*, "Yin pen-chi"

Ancestral title in *Yi-pien* 7767	Possible referent in *Shih-chi*, "Yin pen-chi"
Hsiang Chia	T'ai Chia (K3)*
	Hsiao Chia (K6)*
	Ho Tan Chia (K11)*
	Wu Chia (K14)*
	Yang Chia (K17)
	Tsu Chia (K23)*
Fu Keng	T'ai Keng (K5)*
	Nan Keng (K16)
	P'an Keng (K18)
	Tsu Keng (K22)
Fu Hsin	Tsu Hsin (K13)*
	Hsiao Hsin (K19)
	Lin Hsin (K23A)
	Ti Hsin (K28)*

Note: For a discussion of this table, see sec. 4.3.1.1.

* Kings which can be excluded from consideration in the case of *Yi-pien* 7767 (see pp. 97–98).

Table 17
Chia Kings Appearing in the Same Inscription

Ancestors Recorded*	Inscriptions
Ch'iang Chia (K14), Nan Keng (K16), Hsiang Chia . . . Hsiao Hsin (K19)	*T'ung-tsuan* 118 (S532.3)
Hsiang Chia, Ch'iang Chia (K14), Ch'ien Chia (K11)	*Chin-chang* 518 (D); *Hsü-pien* 1.50.5; *Yi-chu* 245; 246 (S532.3)
Hsiang Chia, Ch'iang Chia (K14)	*Ch'ien-pien* 1.42.2; *Chin-chang* 382 (D); *Hsü-ts'un* 1.2463; *Kikkō* 2.14.4 (S532.3–4)
Hsiang Chia, Ch'ien Chia (K11)	*Hsü-pien* 3.29.3 (S532.4)
Tsu Chia (K23), Hsiang Chia	*Ch'ien-pien* 1.19.5; *Hsü-pien* 3.19.2; *K'u-fang* 1619 (D) (S532.4)

Note: For a discussion of this table, see sec. 4.3.1.1.

*It may be shown by precisely the same kind of study of titles, context, and comparison with the *Shih-chi* genealogy undertaken for Hsiang Chia that oracular Ch'iang Chia is Ssu-ma Ch'ien's Wu Chia (K14), that oracular Ch'ien Chia is Ssu-ma Ch'ien's Ho Tan Chia (K11), and that oracular Tsu Chia is Ssu-ma Ch'ien's Tsu Chia (K23); see Shima (1958), pp. 72, 71, 89.

Table 18
Keng and Hsin Kings of the Same Generation in *Shih-Chi*, "Yin pen-chi"

Ancestral Title	Possible referents	Possible reign or period of divination*
Fu Keng	T'ai Keng (K5)	Reigns of K6, K7, K8
	Nan Keng (K16)	Reigns of K17, K18, K19, K20
	P'an Keng (K18)	Period I
	Tsu Keng (K22)	Period III
Fu Hsin	Tsu Hsin (K13)	Reigns of K15, K16
	Hsiao Hsin (K19)	Period I
	(Fu Hsin)[a]	(Period III)
	Lin Hsin (K23A)	Period IVa

Note: For a discussion of this table, see sec. 4.3.1.1.

*The K numbers are those given in table 10, but in the case of T'ai Keng (K5), the genealogical relationships are those given in *Shih-chi*, "Yin pen-chi." For the *Shih-chi's* genealogical chart, see Ch'en Meng-chia (1956), p. 368; see the notes to table 1 for the way in which the Shang divinations about ritual indicate a different genealogy.

[a] See ch. 4, n. 26.

Table 19
Calligraphy: Period I

SIZE	COPPERPLATE WRITING STYLE				INTERMEDIATE-SKILL WRITING STYLE			
	Neat and/or compact layout		Less ordered and/or more open layout		Neat and/or compact layout		Less ordered and/or more open layout	
	Thick strokes	Normal strokes	Thick strokes	Normal strokes	Thick strokes	Normal strokes	Thick strokes	Normal strokes
Large calligraphy (貞 over 10 mm.)	*Ping-pien* *1.3–4; 8; 57.1;* *Ching-hua* *1; 2*	*Ping-pien* *1.1–2; 12.1–2*						
Medium calligraphy (貞 6 to 10 mm.)	*Ping-pien* *1.7–8; 1.15–16; 14.4–5; 16.4–5*	*Ping-pien* *3; 5*						
Small calligraphy (貞 below 6 mm.)	*Ping-pien 1.9–18; 12.7–8; 14.7–8; 16.7–8; 18.7–8; 20.7–8; 512;* *Ch'ien-pien 4.46.4;* *Fu-yin,* "Li" *7;* *Hsü-pien 6.8.13;* *Hsü-ts'un 1.228*							

Table 20

Range of ᛞ Size on *Ping-pien* 14, 18, 20

Plastron	Large ᛞ	Small ᛞ
Ping-pien 14	14.2: 12 mm.	14.2: 5 mm.
Ping-pien 18	18.2: 11 mm.	18.2: 5 mm.
Ping-pien 20	20.1: 13 mm.	20.2: 6 mm.

Note: For a discussion of this table, see ch. 4, n. 48.

Table 21

Range of ᛞ Size by Period

	Height of longest vertical stroke														
Period*	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16 mm.
Ia		—	—	—	—	—	—	—	—	—	—	—	—	—	
II		—	—	—	—	—	—	—	—						
III			—	—	—	—	—								
V			—	—	—										

Sources: Period I: 15 mm. (*Ping-pien 1.19*); 3 mm. (*Hsü-pien 6.8.13*). Period II: 10 mm. (*Jimbun 1588*); 3 mm. (*Chia-pien 2869*). Period III: 8 mm. (*Chia-pien 2483*); 4 mm. (*Jimbun 1682*). Period V: 6 mm. (*Jimbun 2585*); 3.5 mm. (*Hsü-ts'un 2.974* [D]).

* Period IV is excluded because I have not found a sufficient number of period IV inscriptions containing **tieng* that can be dated on the basis of some other criterion besides writing style. On this difficulty, see ch. 4, n. 62.

Table 22
Calligraphy: Period II

SIZE	COPPERPLATE WRITING STYLE				INTERMEDIATE-SKILL WRITING STYLE			
	Neat and/or compact layout		Less ordered and/or more open layout		Neat and/or compact layout		Less ordered and/or more open layout	
	Thick strokes	Normal strokes	Thick strokes	Normal strokes	Thick strokes	Normal strokes	Thick strokes	Normal strokes
Large calligraphy (貞 over 10 mm.)								
Medium calligraphy (貞 6 to 10 mm.)	*Jimbun 1588; 1595*							
Small calligraphy (貞 below 6 mm.)	*Chia-pien 2869; Ch'ien-pien 1.40.5; 2.21.3; Hou-pien 2.13.2; 2.24.4; Jimbun 1326; 1340; 1363; 1550; Nan-pei*, "Ming" *639* (D); *640* (D)				*Hou-pien 1.2.3* + *1.2.7* + *1.3.4; 1.7.7* + *1.7.9; 1.7.8; Jimbun 1253; 1262*		*Hou-pien 1.7.11*	

Table 23
Calligraphy: Period III

SIZE	COPPERPLATE WRITING STYLE				INTERMEDIATE-SKILL WRITING STYLE			
	Neat and/or compact layout		Less ordered and/or more open layout		Neat and/or compact layout		Less ordered and/or more open layout	
	Thick strokes	Normal strokes	Thick strokes	Normal strokes	Thick strokes	Normal strokes	Thick strokes	Normal strokes
Large calligraphy (貞 over 10 mm.)								
Medium calligraphy (貞 6 to 10 mm.)					*Jimbun 1811 + Ts'ui-pien 317*			
Small calligraphy (貞 below 6 mm.)	*Chia-t'u 42; Ts'ui-pien 340; 342; Yi-ts'un 203*				*Chia-pien 2489; 2589*			

Table 24

Calligraphy: Period V

<table>
<tr><th rowspan="3">Size</th><th colspan="4">Copperplate writing style</th><th colspan="4">Intermediate-skill writing style</th></tr>
<tr><th colspan="2">Neat and/or compact layout</th><th colspan="2">Less ordered and/or more open layout</th><th colspan="2">Neat and/or compact layout</th><th colspan="2">Less ordered and/or more open layout</th></tr>
<tr><th>Thick strokes</th><th>Normal strokes</th><th>Thick strokes</th><th>Normal strokes</th><th>Thick strokes</th><th>Normal strokes</th><th>Thick strokes</th><th>Normal strokes</th></tr>
<tr><td>Large calligraphy (貞 over 10 mm.)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Medium calligraphy (貞 6 to 10 mm.)</td><td></td><td></td><td></td><td></td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td>Small calligraphy (貞 below 6 mm.)</td><td colspan="2"><i>Chia-pien 478; 2416; 3350; 3928; Hsü-ts'un</i> 2.972 (D); <i>Jimbun 2905; 2925; 2927; 2928</i></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr>
</table>

Table 25

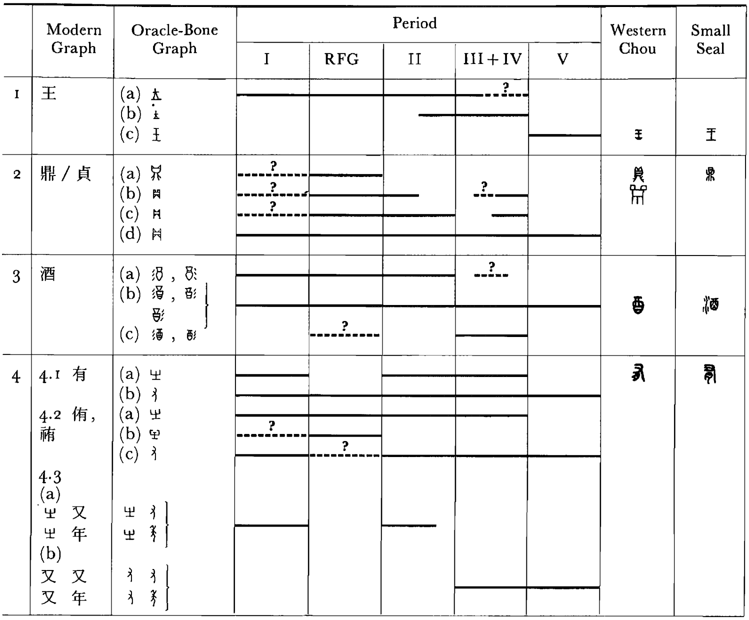
The Evolution of Shang Calligraphy in Periods I to V

	Copperplate writing style						Intermediate-skill writing style					
Size	large		medium		small		large		medium		small	
layout	N	LO	N	LO	N	LO	N	LO	N	LO	N	LO
period I	+		+	+	+							
period II			+		+						+	+
period III+IV					+	+			+	+	+	+
period V					+							

Note: This table resumes the evidence given in tables 19, 22, 23, and 24.
N = neat and/or compact layout. LO = less ordered and/or more open layout.

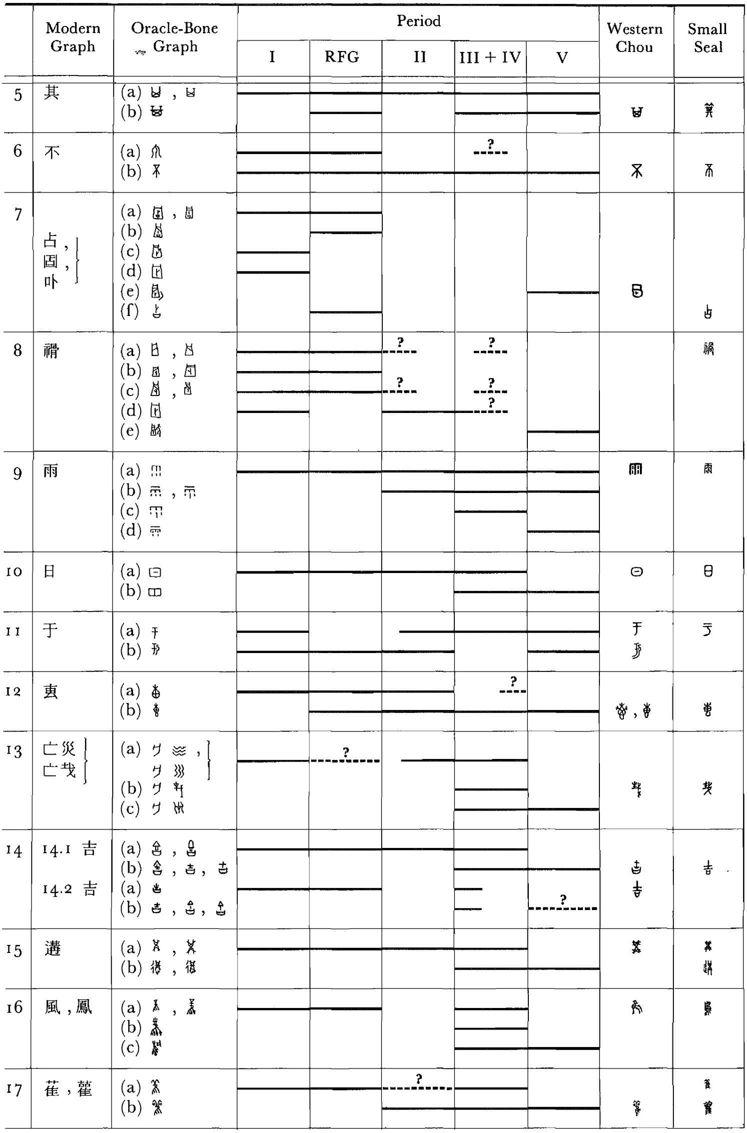
Table 26

Epigraphic Evolution: Selected Graphs



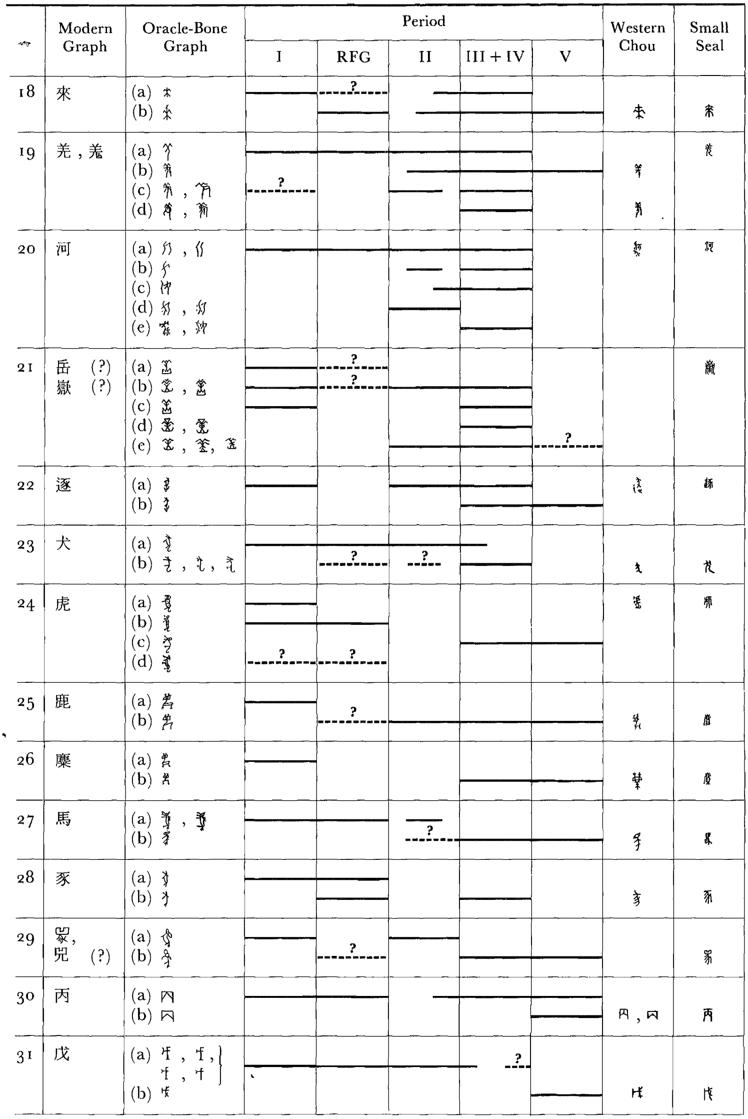
	Modern Graph	Oracle-Bone Graph	Period I	Period RFG	Period II	Period III+IV	Period V	Western Chou	Small Seal
1	王	(a)	—	—	—	— ?			
		(b)			—	—			
		(c)					—		
2	鼎 / 貞	(a)	?	—					
		(b)	?	—	—	? —			
		(c)	?	—	—	—			
		(d)	—	—	—	—	—		
3	酒	(a)	—	—	—	?			
		(b)	—	—	—	—	—		
		(c)		?		—			
4	4.1 有	(a)	—		—	—			
		(b)	—	—	—	—	—		
	4.2 侑, 祐	(a)	—	—	—	—			
		(b)	?	—					
		(c)	—	?	—	—	—		
	4.3 (a) 㞢 又 㞢 年		—		—				
	(b) 又 又 又 年					—	—		

Table 26 (continued)



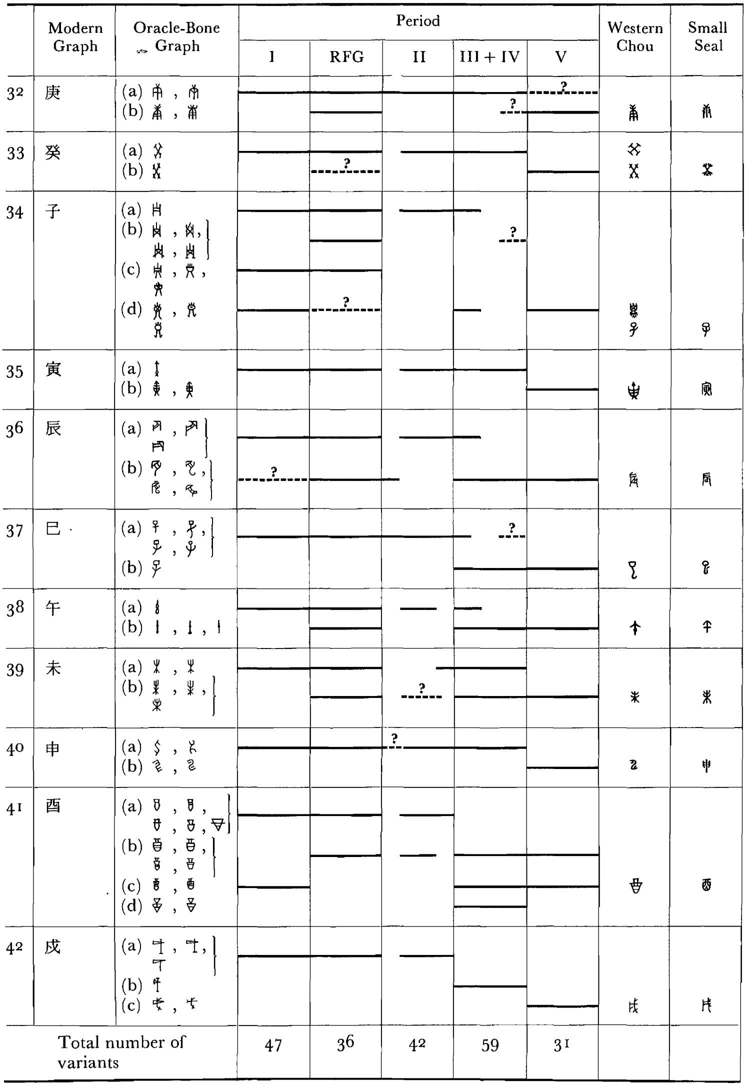
	Modern Graph	Oracle-Bone Graph	Period I	Period RFG	Period II	Period III + IV	Period V	Western Chou	Small Seal
5	其	(a) (b)							
6	不	(a) (b)				?			
7	占，固，卟	(a) (b) (c) (d) (e) (f)							
8	禍	(a) (b) (c) (d) (e)			? ?	? ? ?			
9	雨	(a) (b) (c) (d)							
10	日	(a) (b)							
11	于	(a) (b)							
12	叀	(a) (b)				?			
13	亡災 亡𢦏	(a) (b) (c)		?					
14	14.1 吉 14.2 吉	(a) (b) (a) (b)					?		
15	遘	(a) (b)							
16	風，鳳	(a) (b) (c)							
17	萑，雚	(a) (b)			?				

Table 26 (continued)



	Modern Graph	Oracle-Bone Graph	Period					Western Chou	Small Seal
			I	RFG	II	III + IV	V		
18	來	(a)	—	?	—	—			
		(b)		—	—	—	—		
19	羌，羗	(a)	—	—	—	—			
		(b)			—	—	—		
		(c)	?		—	—			
		(d)				—			
20	河	(a)	—	—	—	—			
		(b)			—	—			
		(c)			—	—			
		(d)			—				
		(e)				—			
21	岳 (?) 嶽 (?)	(a)	—	?					
		(b)	—	?	—	—			
		(c)	—			—			
		(d)				—			
		(e)			—	—	?		
22	逐	(a)	—		—	—			
		(b)				—	—		
23	犬	(a)	—	—	—	—			
		(b)		?	?	—			
24	虎	(a)	—						
		(b)	—	—					
		(c)				—	—		
		(d)	?	?					
25	鹿	(a)	—						
		(b)		?	—	—	—		
26	麋	(a)	—						
		(b)				—	—		
27	馬	(a)	—	—	—				
		(b)			?	—	—		
28	豕	(a)	—	—					
		(b)		—		—			
29	冢， 兕 (?)	(a)	—		—				
		(b)		?		—			
30	丙	(a)	—	—	—	—	—		
		(b)					—		
31	戊	(a)	—	—	—	— ?			
		(b)					—		

Table 26 (continued)



	Modern Graph	Oracle-Bone Graph	Period					Western Chou	Small Seal
			I	RFG	II	III + IV	V		
32	庚	(a)	—	—	—	—	?		
		(b)		—		?	—		
33	癸	(a)	—	—	—	—			
		(b)		?			—		
34	子	(a)	—	—	—	—			
		(b)		—		?			
		(c)	—	—					
		(d)	—	?		—	—		
35	寅	(a)	—	—	—	—			
		(b)					—		
36	辰	(a)	—	—	—	—			
		(b)	?	—		—	—		
37	巳	(a)	—	—	—	— ?			
		(b)				—	—		
38	午	(a)	—	—	—	—			
		(b)		—		—	—		
39	未	(a)	—	—	—	—			
		(b)		—	?	—	—		
40	申	(a)	—	—	? —	—			
		(b)					—		
41	酉	(a)	—	—	—				
		(b)		—	—	—	—		
		(c)	—			—	—		
		(d)				—			
42	戌	(a)	—	—	—				
		(b)				—			
		(c)					—		
Total number of variants			47	36	42	59	31		

Table 26 (continued)

Note: The information in this table is based, so far as possible, upon touchstone inscriptions, but the chronological distribution of graph forms given here is not always firmly established. The oracle-bone graphs represent typical shapes, elements, and orientations; many other variants exist. Rather than cite particular inscriptions, which would require detailed glosses in all disputable cases, I refer to the inscription sample and the studies (if any) upon which my periodizations are based. Scholars seeking to date inscriptions on the basis of graph form must make a thorough study of the evolution of particular graphs for themselves. I use dotted lines and a question mark when I cannot date with certainty the inscriptions in which a particular variant appears. When the horizontal bar fills only part of a column, I have not been able to document the existence of a particular variant for all parts of the period represented. A bar filling the last two-thirds of the period II column, for example, indicates that I find the variant in period II (but without distinction between IIa or IIb) and in IIb, but have been unable to document its occurrence with certainty in period IIa (though in most cases, when the variant also appears in period I, it is likely that it was also used in IIa). The following studies or inscription samples refer to the table entries. **1**: Tung (1933), pp. 412–413; Jao (1959), pp. 60–65; *Jimbun* 2983, *shakubun*, p. 684, n. 2; Chang Tsung-tung (1970), p. 25; S289.3–298.2; 479.2–480.3; *CWP*, ch. 1, pp. 8a–9a. **2**: Kaizuka and Itō (1953), pp. 36–37; Ch'en Meng-chia (1956), pp. 150–151, 159, 162; Ishida (1960); *Jimbun* 3105, *shakubun*, p. 714, n.; Jao (1961a), p. 95; S396.1–397.1; *CWP*, ch. 7, pp. 14b–15b. **3**: S391.2–395.1; *CWP*, ch. 14, p. 37a. **4**: Tung (1945), pt. 1, ch. 3, p. 15b; (1949a), p. 281; Kaizuka and Itō (1953), pp. 15–16; Ch'en Meng-chia (1956), p. 153; Yen Yi-p'ing (1961), p. 487; Ikeda (1964), 1.1.3; Chin Hsiang-heng (1967); Chang Tsung-tung (1970), p. 25; *Ping-pien* 612, *k'ao-shih*, p. 95; Takashima (1973), pp. 27–31; S88.1–89.3; 448.4–449.4; 506.2–507.2; *CWP*, ch. 7, p. 10b. **5**: Tung (1933), p. 412; (1965), p. 100; Yen Yi-p'ing (1961), pp. 529–530; S289.3–298.2; 403.2, etc; *CWP*, ch. 5, pp. 5b–6a. **6**: Ch'en Meng-chia (1956), pp. 150, 162; Takashima (1973), pp. 383–384; S169.3–170.3; 361.2; 455.1–457.2; *CWP*, ch. 12, pp. 1a–b. **7**: *CKWT*, pp. 1099–1102; S307.3–311.3; *CWP*, ch. 3, p. 38a. **8**: S261.4–262.1; 303.1–306.2. **9**: Tung (1933), p. 412; (1965), p. 100; Yen Yi-p'ing (1961), pp. 530–536; Chang Tsung-tung (1970), p. 25; *Jimbun sakuin*, pp. 143–144; S169.3–170.2; *CWP*, ch. 11, p. 8b. **10**: Tung (1933), p. 415; S104.4–105.3; 159.3–161.1; 250.1–251.4; *CWP*, ch. 7, pp. 1a–1b. **11**: Kaizuka and Itō (1953), pp. 70–71; Ch'en Meng-chia (1956), p. 159; S507.3–4; *CWP*, ch. 5, pp. 14a–15a. **12**: Ikeda (1951), pp. 4–7; *Jimbun sakuin*, pp. 61–62; S425.4–431.1; *CWP*, ch. 4, p. 16b. **13**: Tung (1929b), pp. 190–191; (1965), p. 100; Yü Yung-liang (1929), p. 216; *CKWT*, pp. 3404–3405; Mickel (1976), pp. 186–188; S104.4–105.2; 180.4; 184.3–185.4; 289.3–298.2; 321.1–323.1; *CWP*, ch. 12, pp. 27a–b. **14** (note: 14.1 refers to *chi* in charges or prognostications, 14.2 to *chi* in crack notations): Tung (1929b), pp. 207–208; Chang Ping-ch'üan (1952), pp. 626–631; Wu Shih-ch'ang (1955), p. 52; Hsü Chin-hsiung (1973a), pp. 4–5, 57–58; S126.2–4; 308.1–311.3; *CWP*, ch. 2, pp. 11a–11b. **15** (the entry refers only to *kou* when used in phrases like *kou-feng*, "encounter wind," and *kou-yü*, "encounter rain"): Kaizuka (1946), p. 221; Tung (1965), p. 100; S455.1–457.4 (but excluding the sacrificial contexts at S455.2–3); *CWP*, ch. 4, p. 15a. **16**: Tung (1933), pp. 414–415; Li Hsiao-ting (1968), pp. 96–97; Ting Su (1968), pp. 36–37; S233.4–234.4; 455.3–4; *CWP*, ch. 4, p. 13b. **17**: Tung (1965), p. 100; S232.3–233.1; *CWP*, ch. 4, p. 11b. **18** (the entry refers only to *lai* used as a verb): Tung (1933), p. 412; (1965), p. 100; S198.4–201.4; *CWP*, ch. 5, pp. 36b–37a. **19**: Tung (1948b), pp. 192–193; (1965), p. 100; Ch'en Meng-chia (1956), p. 407; Yen Yi-p'ing (1961), pp. 523–526; Chang Tsung-tung (1970), p. 25; S14.4–19.3; 528.3–529.2; *CWP*, ch. 4, p. 13a. **20**: Yen Yi-p'ing (1961), pp. 526–529; Chang Tsung-tung (1970), p. 25; S13.4–14.1; 181.3–184.3; *CWP*, ch. 11, p. 1a. **21**: Ch'ü Wan-li (1960); Yen Yi-p'ing (1961), pp. 526–529; Chang Tsung-tung (1970), p. 25; S174.1–176.2. **22**: Tung (1949a), p. 282; S81.1–4; *CWP*, ch. 2, p. 25a. **23**: S216.1–217.3; *CWP*, ch. 10, p. 3b. **24**: S225.1–3; *CWP*, ch. 5, p. 18a. **25**: S81.2; 228.1–4; *CWP*, ch. 10, p. 3a. **26**: S81.1–2; 227.1–3. **27**: Kaizuka (1946), pp. 220–221; S221.2–222.2; *CWP*, ch. 10, pp. 1a–b. **28**: S218.2–3; *CWP*, ch. 9, p. 18b. **29**: S81.1; 222.4–223.3. **30–42**: on the evolution of the cyclical graphs, see Tung (1933), pp. 409–410; (1945), pt. 2, ch. 6, p. 4b; (1949a), pp. 275–276; (1965), pp. 99–100; Kaizuka (1946), pp. 223–229; Kaizuka and Itō (1953), pp. 66–71, 75; Ch'en Meng-chia (1956), p. 150; Liu Yüan-lin (1974), pp. 120, 122–123; for the Western Chou forms, see CWP, ch. 14, pp. 22b–31a, 35a–37a, 42b. For entry 31, see Kane (1973), p. 341.

Table 27

Epigraphic Evolution: Total Number of Variants by Period

Number of graphs per period					Number of variants
I	RFG	II	III+IV	V	
33	22	24	20	34	one form only
6	8	8	13	4	two variant forms
2	4	2	4	1	three variant forms
2	1	2	5	0	four variant forms

Note: This table summarizes the information given in table 26.

Table 28

Crack Notations: Distribution by Period

Crack notation	Period			
	I	II	III+IV	V
shang-chi 上吉	+		+(?)	
hsiao-chi 小吉	+			
chi 吉	+		+	
pu tsai ming 不再命 (?)	+			
ta-chi 大吉			+	
hung-chi 弘吉			+	
tzu yung 兹用		+	+	+
tzu yü 兹御				+

Sources: Hu Hou-hsüan (1939a); Chang Ping-ch'üan (1952); *Jimbun sakuin*.
+ indicates occurrence of crack notation.

Table 29

Divination Topics: Frequency in Periods I to V (In Percentages)

Topic	Period and Collection							
	I		II		III+IV		V	
	Jimbun	*Menzies*	*Jimbun*	*Menzies*	*Jimbun*	*Menzies*	*Jimbun*	*Menzies*
Sacrifices	17	32	37 [32]	58	18 [10]	16	43	63
Harvest	3	1	11 [4]	0.4	1	2	0.2	0
Wind & rain	7	8	14 [9]	13	15 [17]	8	1	2
Travel	3.5	1	8 [0]	1	0.6 [1]	5	3	0
Commands	8	3	2 [3]	1	2 [2]	3	0	0
Sickness & dreams	3	3	0	0	0	0	0	0
Hunting	4	0	1 [9]	2	19 [27]	4	2	4
Ten days or night	4	0	22 [28]	1	13 [6]	0	37	24
Totals	49.5	48	95 [85]	76.4	68.6 [64]	38	86.2	93

Note: The figures in square brackets indicate that inscriptions dated to period IV by *Jimbun shakubun* have, following Chang Tsung-tung, been placed in period II (see ch. 4, n. 44). Some of the *Menzies* inscriptions here assigned to period IV would be treated as RFG inscriptions in *Jimbun* (see ch. 2, n. 18). All the figures are approximate since they are based only on fragment, not inscription, counts; nor has any provision been made for counting inscriptions that deal with one topic when the fragment and its other inscriptions have been classified under another topic. Nevertheless, the figures indicate the periodic trends found in *Jimbun* and *Menzies*; for a discussion, see sec. 4.3.1.12.

Table 30

Scapula Hollow Shapes by Period

Hollow shape	Period					
	I	RFG	II	III	IV*	V
Round chiseled hollows larger than, and containing, long chiseled hollows	Yes	No	No	No	No	No
Round hollows, chiseled on shoulders of long hollows	Yes	No	No	No	No	No
Hollows on lower front	No	Yes	No	Yes	Yes	No
Round drilled hollows	Yes	Yes	No	No	Yes	No
Long chiseled hollows	Yes	Yes	Yes	Yes	Yes	

Source: Hsü Chin-hsiung (1973a), pp. 22, 111–112.

* Cf. my comments at ch. 4, n. 161.

Table 31

Bone and Shell Fragments: Distribution by Period

Collection	Period			
	I	II	III + IV	V
Chia-pien	1663	114	1939	103
Yi-pien	9105	0	0	0
1973 finds	20	0	4781	20
Ching-chin	3160	642	1184	656
Hsü-ts'un	2063	394	674	622
Jimbun	1250	431	883	413
Menzies	1168	477	1186	345
White	1009	288	383	235
Totals	19,438 (55.2%)	2,346 (6.7%)	11,030 (31.3%)	2,394 (6.8%)
Fragments/year (revised short chronology)	972	78	220	48
Fragments/year (long chronology)	329	59	356	24

Note: In the entries for *Chia-pien*, *Yi-pien*, *Ching-chin*, and *Hsü-ts'un*, the RFG inscriptions are assigned to period I; in the entries for *Menzies* and *White*, they are assigned to period III + IV (see ch. 2, n. 18). The figures for the 1973 finds are estimates, based on *KK* (1975.1), p. 39. It is possible that 306 of the 307 *Jimbun* fragments, here assigned to period IV, belong in period II (see ch. 4, n. 44). For the revised short and long chronologies, see appendix 4 and tables 37 and 38; for the long chronology, I assume that period I covers only the 59 years of Wu Ting's reign, not the 104 years from P'an Keng's fourteenth year down to the end of Wu Ting's reign (on this point, see ch. 4, n. 24). For a discussion of the figures in this table, see sec. 5.3.2.

Table 32

Bone and Shell Fragments: Percentages in Four Major Collections (Periods I to V)

Collection	Material	Period				Totals
		I	II	III + IV	V	
Chia-pien	Bone	348 (21%)	61 (53.5%)	928 (48%)	43 (42%)	1380 (36%)
	Shell	1315 (79%)	53 (46.5%)	1011 (52%)	60 (58%)	2439 (64%)
Jimbun	Bone	948 (62.5%)	141 (33%)	799 (90.5%)	90 (22%)	1575 (49.5%)
	Shell	571 (37.5%)	290 (67%)	84 (9.5%)	323 (78%)	1645 (50.5%)
Menzies	Bone	61 (5%)	24 (5%)	1114 (95%)	9 (3%)	1208 (38%)
	Shell	1107 (95%)	453 (95%)	72 (6%)	336 (97%)	1968 (62%)
White	Bone	114 (11%)	51 (18%)	244 (63.5%)	33 (14%)	442 (23%)
	Shell	895 (89%)	237 (82%)	140 (36.5%)	202 (86%)	1474 (77%)

Note: In the *Chia-pien* and *Jimbun* entries, RFG inscriptions are assigned to period I; in the *Menzies* and *White* entries they are assigned to period IV (see ch. 2, n. 18). It is possible that 52 of the 53 *Jimbun* bone fragments, here assigned to period IV, belong in period II (see ch. 4, n. 44). I am grateful to Richard Kunst for counting the *Chia-pien* fragments; 45 fragments in *Chia-pien*, not dated by the commentator, Ch'ü Wan-li, are omitted from these figures. For a discussion of the figures in this table, see appendix 2, sec. 1.

Table 33

Number of Fragments per Scapula and Plastron in Five Major Collections

Collection	Average fragment size (in cm²)		Bone/shell fragment size ratio	Number of bone fragments per scapula*	Number of shell fragments per plastron*
	Bone	Shell			
Chia-pien	22.2	10.6	2.1/1	14.5	30
Yi-pien	74.5	30.6	2.4/1	4.1	10.4
Jimbun	15.7	8.1	1.9/1	20	39
Menzies	25	4.5	5.6/1	12.4	71
T'ieh-yün	9.6	11.7	0.8/1	32	27

Note: For a discussion of these figures, see appendix 2, sec. 2.

*These figures ignore the fact that inscribed fragments formed only about 52 percent of the corpus excavated (see appendix 3, sec. 1). In absolute terms, therefore, of the 14.5 *Chia-pien*-sized bone fragments that would have formed a scapula, only about 52 percent of these (i.e., 7.5 fragments) would have been inscribed; they would have combined with about 7 uninscribed *Chia-pien*-sized bone fragments to form a scapula. These considerations, however, have no bearing on the ratios of numbers of bone and shell fragments needed to form whole scapulas and plastrons.

Table 34

Scapulas and Plastrons: Distribution in Three Major Collections (Periods I to V)

Collection	Material	Period				Totals
		I*	II	III+IV*	V	
Chia-pien	Scapulas (14.5 bone fragments/scapula)	24 (35%)	3.8 (68%)	64 (63%)	3 (60%)	94.8 (52%)
	Plastrons (30 shell fragments/plastron)	44 (65%)	1.8 (32%)	38 (37%)	2 (40%)	85.8 (48%)
Jimbun	Scapulas (20 bone fragments/scapula)	28.3 (54%)	7 (50%)	40 (95%)	4.5 (36%)	79.8 (66%)
	Plastrons (39 shell fragments/plastron)	24 (46%)	7 (50%)	2 (5%)	8 (64%)	41 (34%)
Menzies	Scapulas (12.4 bone fragments/scapula)	5 (24%)	2 (24%)	90 (99%)	0.7 (13%)	97.7 (78%)
	Plastrons (71 shell fragments/plastron)	15.6 (76%)	6.4 (76%)	1 (1%)	4.7 (87%)	27.7 (22%)

Note: For the absolute numbers of scapulas and plastrons involved, see the asterisk under table 33. For a discussion of the figures in this table, see appendix 2, sec. 2.

*For the *Chia-pien* and *Jimbun* entries, RFG inscriptions are included in period I; for the *Menzies* entries, RFG inscriptions are included in period III+IV (see ch. 2, n. 18). For the *Jimbun* inscriptions assigned to period IV, see the notes to table 32.

Table 35

Scapulas and Plastrons: Distribution by Period in *Chia-pien* and *Jimbun* Combined

Material	Period				Totals
	I + RFG	II	III+IV	V	
Scapulas	52.3 (43%)	10.8 (55%)	104 (72%)	7.5 (43%)	174.6 (58%)
Plastrons	68 (57%)	8.8 (45%)	40 (28%)	10 (57%)	126.8 (42%)

Note: For the absolute numbers of scapulas and plastrons involved, see the asterisk under table 33. For a discussion of these figures, see appendix 2, sec. 2.

Table 36

Number of Oracle Bones Recovered Compared with Number Reported in Marginal Notations

Marginal notation		Number of notations recovered	Percentage recovered
Ch'üeh sent in 雀入	3	1	30
	30	1	3
	100	1	1
	150	3	2
	250	22	8.8
	500	1	0.2
Chu sent in 貯入	1	1	100
	2	2	100
	3	2	66
	4	1	25
	10	4	40
	20	2	10
	70	1	1.4
Chu sent in 壴入	2	2	100
	5	1	20
	10	5	50
	20	1	5
	40	1	2.5
Hsi sent in 喜入	5	2	40

Sources: For "Ch'üeh sent in 250," see the inscriptions listed in appendix 3, n. 11; for "Chu sent in 70," see *Ping-pien* 367, but the reading is uncertain, as it is in a number of the cases listed above. The entries in S256.1–256.2, from which most of the counts in this table are taken, are not complete. A detailed survey of the *Yi-pien* plastrons would probably raise some of the percentages by several points.

Table 37
Chronologies Proposed for the P'an Keng-Ti Hsin Era

KING	TUNG TSO-PIN[a]			CH'EN MENG-CHIA[b]			LIU HSIN[c]	
	Reign (yrs.)	Dates B.C.	Source	Reign (yrs.)	Dates B.C.	Source	Reign (yrs.)	Dates B.C.
P'an Keng (K18)	28	1398–1371	"all books agree"[d]				28	1401–1374
Hsiao Hsin (K19)	21	1370–1350	*T'ung-chien wai-chi*[e]	60±	1300–1239		21	1373–1353
Hsiao Yi (K20)	10	1349–1340	*Chin-pen chi-nien*				28	1352–1325
Wu Ting (K21)	59	1339–1281	"all books agree"[f]	59	1238–1180	*Shang-shu*, "Wu yi"	59	1324–1266
Tsu Keng (K 22)	7	1280–1274	*T'ai-p'ing yü-lan;*[g] *Huang-chi ching-shih;*[h] *T'ung-chien wai-chi*[e]	7±	1179–1173	*T'ai-p'ing yü-lan*[g]	7	1265–1259
Tsu Chia (K23)	33	1273–1241	*Huang-chi ching-shih*,[h] based on *Shang-shu*, "Wu yi"	33	1172–1140	*Shang-shu*, "Wu yi"	33	1258–1226
Lin Hsin (K23A)	6	1240–1235	*T'ai-p'ing yü-lan;*[i] *Huang-chi ching-shih;*[h] *T'ung-chien wai-chi*[e]	10±	1139–1130		6	1225–1220
Keng Ting (K24)	8	1234–1227	*Chin-pen chi-nien*				21	1219–1199
Wu Yi (K25)	4	1226–1223	*Huang-chi ching-shih;*[h] *T'ung-chien wai-chi*[e]	35+	1129–1095	*Ku-pen chi-nien*[j]	4	1198–1195
Wen Wu Ting (K26)	13	1222–1210	*Chin-pen chi-nien*	11+	1094–1084	*Ku-pen chi-nien*	4	1198–1195
Ti yi (K27)	35	1209–1175	*Ku-pen chi-nien* (?)[j]	20+	1084–80 — 1060–50	oracle bones[l]	37	1191–1155
Ti Hsin (K28)	63	1174–1112	*Yü Tzu;*[k] *T'ung-chien wai-chi*[e]	20+	1060–50 — 1027	oracle bones[l]	32	1154–1123

[a] Tung (1945), pt. 1, ch. 4, pp. 11a–b.

[b] Ch'en Meng-chia (1955), pp. 73–74.

[c] For Liu Hsin's chronology see appendix 4, sec. 2. This is the traditional, orthodox chronology which also appears in such works as Tchang (1905).

Table 37 (continued)

[d] This orthodox reign length apparently derives from Liu Hsin's calendrical calculations, which are unacceptable (see appendix 4, sec. 2).

[e] *T'ung-chien wai-chi* 通鑑外紀 of Liu Shu 劉恕, published in A.D. 1078. The figure probably comes from Liu Hsin's *Shih-ching* 世經 (see appendix 4, sec. 2).

[f] The earliest source for this figure is *Shang-shu*, "Wu yi," a moralizing work attributed to the Duke of Chou, but probably composed early in the Ch'un-ch'iu period (for its date of composition, see Matsumoto Masaaki [1966], p. 657; cf. Creel [1970], pp. 458–461).

[g] *T'ai-p'ing yü-lan* 太平御覽, ch. 83, p. 10a. This work of A.D. 983 quotes a *Shih-chi* 史記, which is apparently not the work of the same title by Ssu-ma Ch'ien, and whose origins are unclear (Ch'en Meng-chia [1955], p. 58). The figure presumably derives from Liu Hsin's *Shih-ching*.

[h] *Huang-chi ching-shih* 皇極經世 (eleventh century A.D.).

[i] *T'ai-p'ing yü-lan*, ch. 83, p. 10b, quoting the same *Shih-chi* cited in note *g*; the figure presumably derives from Liu Hsin's *Shih-ching*.

[j] *Ku-pen chu-shu chi-nien* assigns thirty-five years to Wu Yi (Fan [1962], p. 22). Tung (1945), pt. 1, ch. 4, p. 11b, assumes that *Chi-nien* has confused Wu Yi (K25) with Ti Yi (K27).

[k] The figure is taken from *Yü-tzu* 鬻子, a Taoist work first mentioned in *Han-shu*, "Yi-wen chih." The fact that no oracle inscriptions record more than a twentieth ritual cycle suggests the figure of sixty-three years is too large (cf. appendix 4, n. 20).

[l] See appendix 4, n. 20.

Table 38

Revised Short Chronology for the Historical Period

King	Approx. reign length (years)	Approx. dates B.C.
Wu Ting (K21)	20	1200–1181[a]
Tsu Keng (K22)	10[b]	1180–1171
Tsu Chia (K23)	20[b]	1170–1151
Lin Hsin (K23A) and/or Keng Ting (K24)	20 or 30[c]	1150–1131 or 1150–1121
Wu Yi (K25)	15[d]	1130–1116 or 1120–1106
Wen Wu Ting (K26)	15[d]	1115–1101 or 1105–1091
Ti Yi (K27)	20[e]	1100–1081 or 1090–1071
Ti Hsin (K28)	30[f]	1080–1051 or 1070–1041

[a] These absolute dates are based on the period I lunar eclipse inscriptions and on estimates of average reign length (see appendix 4, secs. 4–6).

[b] Since fraternal succession is involved, it seems wiser to assign a period of thirty years—the length of a generation (Bishop [1932], p. 236; cf. Lei [1931], p. 11, who arrives at a figure of twenty-five years)—to the reigns of Tsu Keng and Tsu Chia, rather than the forty years of two average reigns. For what it is worth, *T'ai-p'ing yü-lan*, ch. 83, p. 10a, records a reign of sixteen years for Tsu Chia; its source is the *Shih-chi* discussed in table 37, note *g*, above.

[c] For the possibility that Lin Hsin did not come to the throne, see table 1, note *h*, above. Even if he did reign, he was then succeeded by his brother, Keng Ting, so that a thirty-year period would be the right estimate (as in note *b*); the possibility of a ten-year error is thus introduced at this point.

[d] Since the oracle-bone evidence indicates that Ti Yi and Ti Hsin were on the throne for about fifty years (i.e., ten years longer than the average twenty-year reign would lead us to expect; see notes *e* and *f*), I propose that the average reign length of twenty years be maintained by shortening the two reigns of period IV by five years each. See also Table 15, note *ao*.

[e] For the inscriptional evidence which indicates that Ti Yi ruled for about twenty years, see appendix 4, n. 20.

[f] For the inscriptional evidence which indicates that Ti Hsin ruled for about thirty years, see appendix 4, n. 20. Matsumaru (1963), p. 128, estimates that the last four kings were on the throne for approximately 80 to 100 years.

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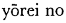
1960 "Tei tei yōrei no kentō  用例の検討." *Kōkotsugaku* 8, pp. 19–32.

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*The original rubbings are cited in *Ho-pien* beside Tseng Yi-kung's drawings of the rejoined fragments.

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